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NATIONAL DAM SAFETY PROGRAM, WEST MILLPOND DAM (NY 01060), MOHA--ETC(U)  
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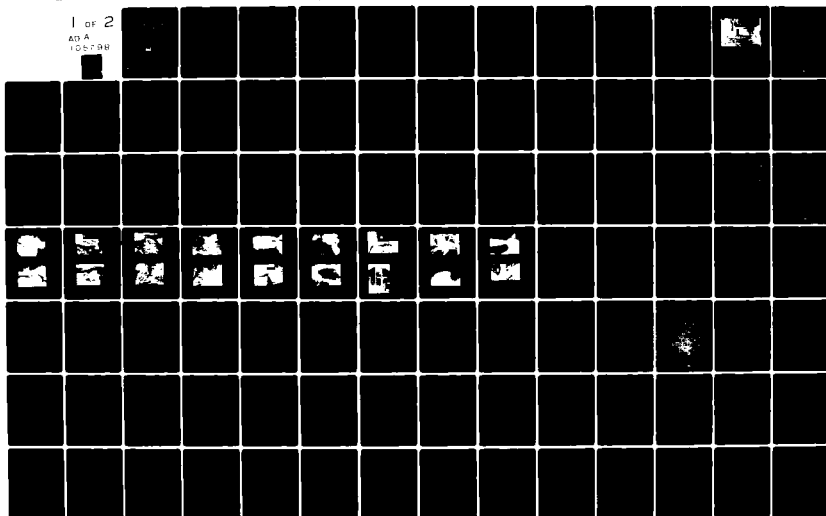
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MOHAWK RIVER BASIN  
CITY OF GLOVERSVILLE  
FULTON COUNTY, NEW YORK

# WEST MILLPOND DAM

## NY 01060

AD A105298

PHASE I INSPECTION REPORT  
NATIONAL DAM INSPECTION PROGRAM



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DEPARTMENT OF THE ARMY  
NEW YORK DISTRICT, CORPS OF ENGINEERS  
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NEW YORK, NY 10278

JULY 1981

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REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER	2. GOVT ACCESSION NO. <b>AD-A105</b>	3. RECIPIENT'S CATALOG NUMBER <b>798</b>
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20. ABSTRACT (Continue on reverse side if necessary and identify by block number)  This report provides information and analysis on the physical condition of the dam as of the report date. Information and analysis are based on visual inspection of the dam by the performing organization.  Examination of available documents and visual inspection of the dam <u>did not</u> reveal conditions which constitute an immediate hazard to human life or property. However, the dam has some serious deficiencies which require further investigation and remedial work.		

Hydrologic and hydraulic analysis indicates that maximum spillway discharge capacity is only about 9% of the PMF peak outflow. The 1/2 PMF would overtop the earth embankment and would probably cause failure. Therefore, in accordance with Corps of Engineers' screening criteria for review of spillway adequacy, spillway capacity is considered "seriously inadequate" and the dam is assessed as "unsafe, non-emergency".

The classification of "unsafe" applied to a dam because of a seriously inadequate spillway is not meant to connote the same degree of emergency as would be associated with an "unsafe" classification applied for a structural deficiency. It does mean that there appears to be a serious deficiency in spillway capacity and if a severe storm were to occur, overtopping and failure of the dam could take place, significantly increasing the hazard to loss of life downstream of the dam.

Therefore, it is recommended that within 3 months after receipt of this report by the Owner, a detailed hydrologic and hydraulic analysis be started to better assess spillway capacity. This should include a more accurate determination of the site specific characteristics of the watershed. Within 18 months after receipt of this report by the Owner, any appropriate remedial work should be completed. The detailed analysis and the design and construction observation of any remedial work should be done by a qualified, registered professional engineer.

In the meantime, the Owner should immediately institute a program to visually inspect the dam and its appurtenances at least once a month. Also, within 3 months after receipt of this report the Owner should complete development of a surveillance program for use during periods of heavy runoff and of an emergency action plan outlining action to be taken to minimize the downstream effects of an emergency, together with an effective warning system.

Because of other deficiencies, the following additional investigations should be started within 3 months after receipt of this report by the Owner. The investigations should be performed by a qualified, registered professional engineer.

- 1) Investigate the causes of subsidence of the crest of the dam at various locations.
- 2) Investigate the causes of tilting and poor alignment of the concrete-faced stone masonry wall which retains the upstream side of the embankment.

Any remedial work deemed necessary as a result of these investigations should be completed within 18 months after receipt of this report by the Owner. A qualified, registered professional engineer should design and observe the construction of any necessary remedial work.

## PREFACE

This report is prepared under guidance contained in the Recommended Guidelines for Safety Inspection of Dams, for Phase I Investigations. Copies of these guidelines may be obtained from the Office of Chief of Engineers, Washington, D.C. 20314. The purpose of a Phase I Investigation is to identify expeditiously those dams which may pose hazards to human life or property. The assessment of the general condition of the dam is based upon available data and visual inspections. Detailed investigation, and analyses involving topographic mapping, subsurface investigations, testing, and detailed computational evaluations are beyond the scope of a Phase I Investigation; however, the investigation is intended to identify any need for such studies.

In reviewing this report, it should be realized that the reported condition of the dam is based on observations of field conditions at the time of inspection along with data available to the inspection team. In cases where the reservoir was lowered or drained prior to inspection, such action, while improving the stability and safety of the dam, removes the normal load on the structure and may obscure certain conditions which might otherwise be detectable if inspected under the normal operating environment of the structure.

It is important to note that the condition of a dam depends on numerous and constantly changing internal and external conditions, and is evolutionary in nature. It would be incorrect to assume that the present condition of the dam will continue to represent the condition of the dam at some point in the future. Only through frequent inspections can unsafe conditions be detected and only through continued care and maintenance can these conditions be prevented or corrected.

Phase I Inspections are not intended to provide detailed hydrologic and hydraulic analyses. In accordance with the established Guidelines, the Spillway Test Flood is based on the estimated "Probable Maximum Flood" for the region (greatest reasonably possible storm runoff), or fractions thereof. Because of the magnitude and rarity of such a storm event, a finding that a spillway will not pass the test flood should not be interpreted as necessarily posing a highly inadequate condition. The test flood provides a measure of relative spillway capacity and serves as an aide in determining the need for more detailed hydrologic and hydraulic studies, considering the size of the dam, its general condition and the downstream damage potential.

The Phase I Investigation does not include an assessment of the need for fences, gates, no-trespassing signs, repairs to existing fences and railings and other items which may be needed to minimize trespass and provide greater security for the facility and safety to the public. An evaluation of the project for compliance with OSHA rules and regulations is also excluded.

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WEST MILLPOND DAM, NY 01060

## PHASE I INSPECTION REPORT

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## NATIONAL DAM INSPECTION PROGRAM

## PHASE I INSPECTION REPORT

Identification No.: NY 01060  
Name of Dam: West Millpond Dam  
State Located: New York  
County: Fulton  
Municipality: City of Gloversville  
Watershed: Mohawk River Basin  
Stream: Meco Creek  
Date of Inspection: June 3, 1981

ASSESSMENT

Examination of available documents and visual inspection of the dam did not reveal conditions which constitute an immediate hazard to human life or property. However, the dam has some serious deficiencies which require further investigation and remedial work.

Hydrologic and hydraulic analysis indicates that maximum spillway discharge capacity is only about 9% of the PMF peak outflow. The 1/2 PMF would overtop the earth embankment and would probably cause failure. Therefore, in accordance with Corps of Engineers' screening criteria for review of spillway adequacy, spillway capacity is considered "seriously inadequate" and the dam is assessed as "unsafe, non-emergency".

The classification of "unsafe" applied to a dam because of a seriously inadequate spillway is not meant to connote the same degree of emergency as would be associated with an "unsafe" classification applied for a structural deficiency. It does mean that there appears to be a serious deficiency in spillway capacity and if a severe storm were to occur, overtopping and failure of the dam could take place, significantly increasing the hazard to loss of life downstream of the dam.

Therefore, it is recommended that within 3 months after receipt of this report by the Owner, a detailed hydrologic and hydraulic analysis be started to better assess spillway capacity. This should include a more accurate determination of the site specific characteristics of the watershed. Within 18 months after receipt

of this report by the Owner, any appropriate remedial work should be completed. The detailed analysis and the design and construction observation of any remedial work should be done by a qualified, registered professional engineer.

In the meantime, the Owner should immediately institute a program to visually inspect the dam and its appurtenances at least once a month. Also, within 3 months after receipt of this report the Owner should complete development of a surveillance program for use during periods of heavy runoff and of an emergency action plan outlining action to be taken to minimize the downstream effects of an emergency, together with an effective warning system.

Because of other deficiencies, the following additional investigations should be started within 3 months after receipt of this report by the Owner. The investigations should be performed by a qualified, registered professional engineer.

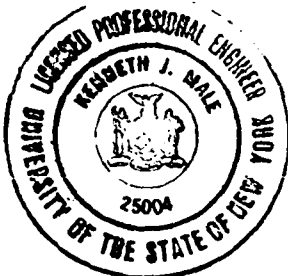
- 1) Investigate the causes of subsidence of the crest of the dam at various locations.
- 2) Investigate the causes of tilting and poor alignment of the concrete-faced stone masonry wall which retains the upstream side of the embankment.

Any remedial work deemed necessary as a result of these investigations should be completed within 18 months after receipt of this report by the Owner. A qualified, registered professional engineer should design and observe the construction of any necessary remedial work.

The following remedial work should be completed by the Owner within 12 months after his receipt of this report. Where engineering assistance is indicated, the Owner should engage a qualified, registered professional engineer. Assistance by such an engineer may also be useful for some of the other work.


- 1) Remove trees and brush and their root systems from the embankment and from a zone 25 feet wide next to the downstream toe in accordance with specifications and field observation of the work by an engineer. Backfilling the zones where stumps and roots have been removed should be done with proper material and procedures. Continue to keep these same areas clear by cutting, mowing, and cleanup at least annually.
- 2) Control trespassing on the embankment. A foot path on the downstream slope is bare of vegetation and eroded.
- 3) Provide erosion protection for the embankment in accordance with recommendations made by an engineer. There is a lack of erosion protection on the crest of the dam near the left abutment.

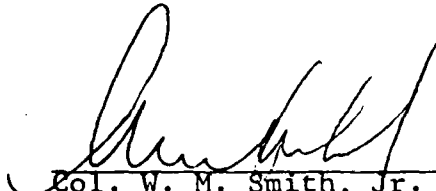
- 4) Repair the deteriorated concrete and stone masonry of the dam.
- 5) Dewater and inspect the outlet pipe gate and make repairs necessary to stop leakage and correct any other problems found.
- 6) Develop and implement effective routine operation and maintenance procedures for the dam and its appurtenances. The outlet pipe gate and the water supply main valve should be exercised regularly.
- 7) Institute a program of comprehensive technical inspection of the dam and its appurtenances by an engineer on a periodic basis of at least once every two years.



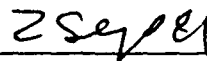
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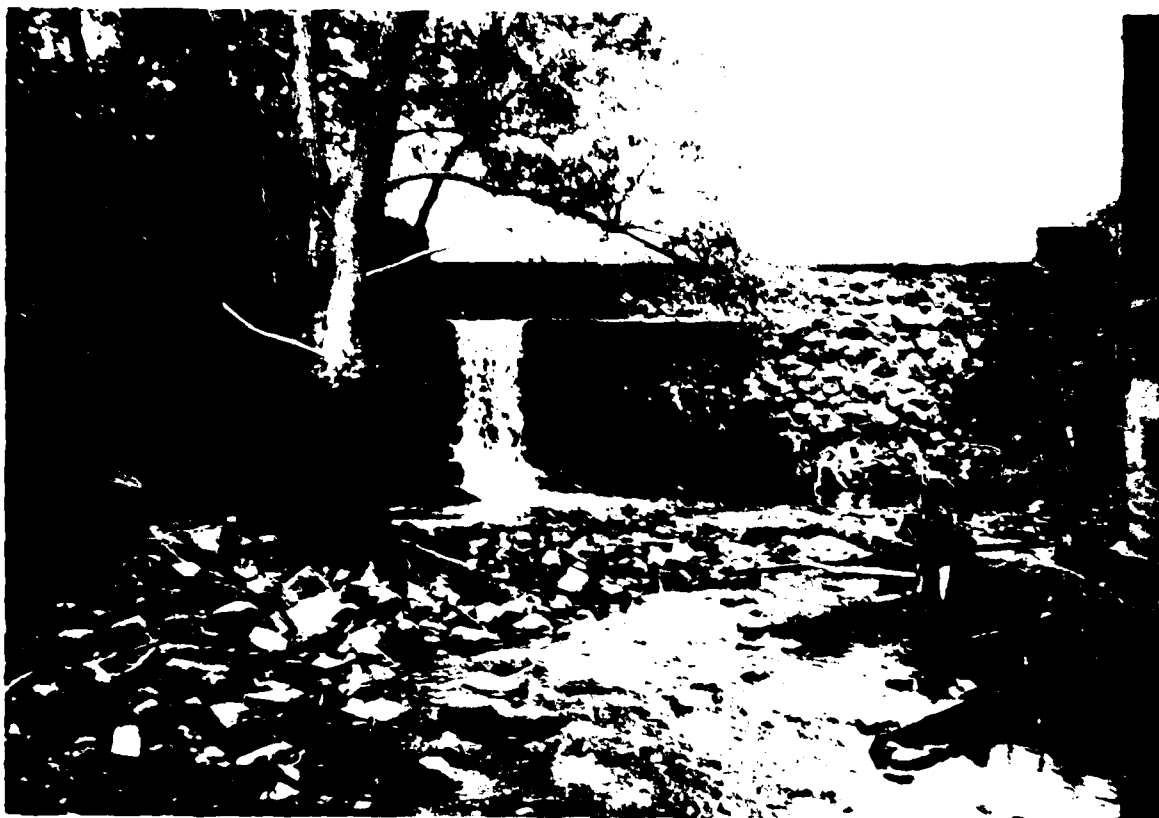
Approved by:

  
Kenneth J. Male  
President  
C. T. Male Associates, P.C.  
NY PE 25004

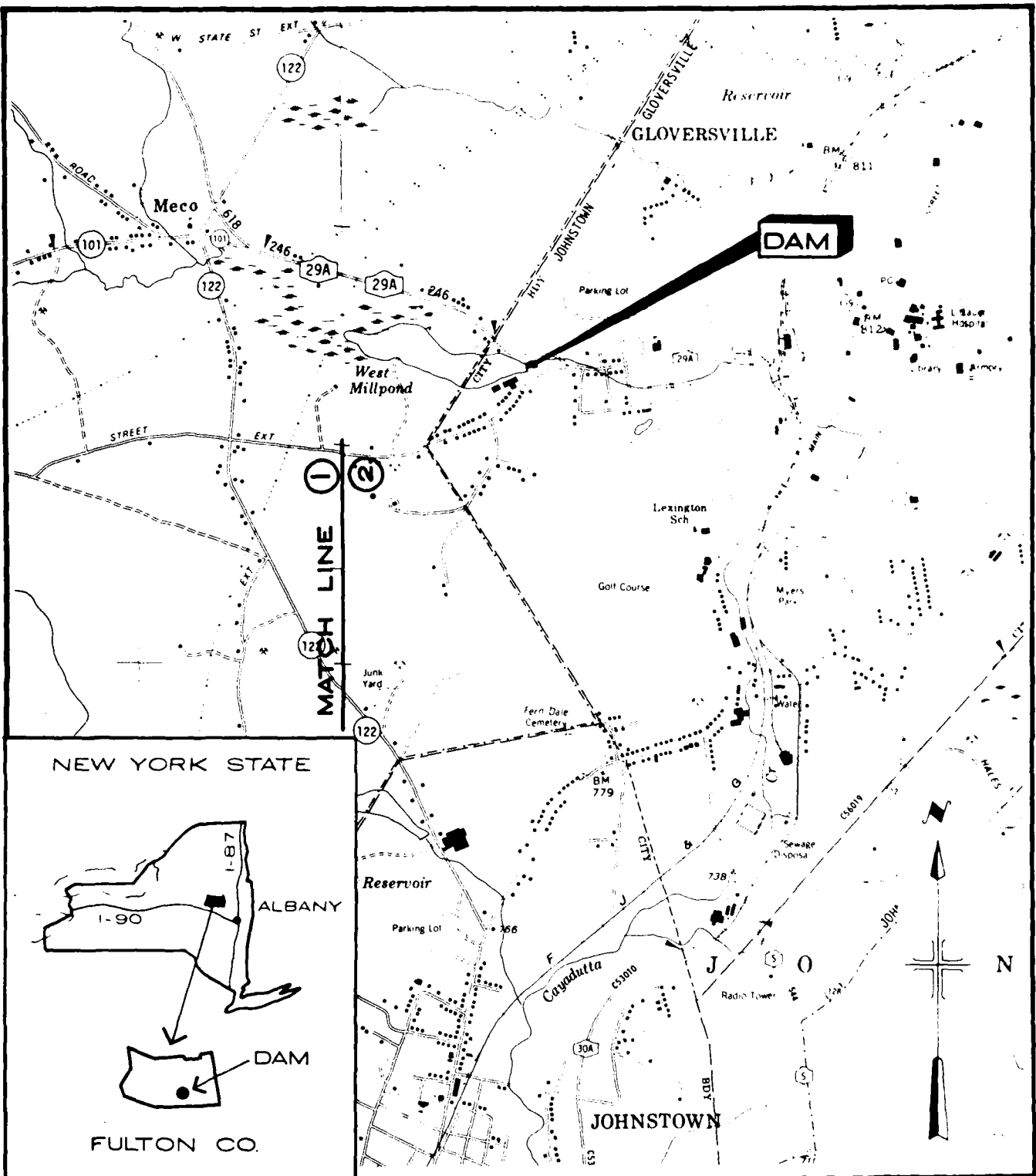
  
Col. W. M. Smith, Jr.  
New York District Engineer  
Corps of Engineers

Date:

  
2 Sept 81



Overview Photo - West Millpond Dam ( spillway ) - 6 3 81



SCALE OF FEET  
0 2000 4000

BASE MAP: NYS-DOT PLANIMETRIC  
QUADS., 7.5 MIN.

①- PECK LAKE, 1969  
②- GLOVERSVILLE, 1969

PROJECT NO. 58.01.014/80.854

**WEST MILLPOND DAM  
VICINITY MAP**

CITY OF GLOVERSVILLE	FULTON CO., NY
SCALE: 1" = 2000'	DATE: JANUARY 1981

**C. T. MALE ASSOCIATES, P.C.**  
3000 TROY ROAD, SCHENECTADY, N.Y. 12309  
PROFESSIONAL ENGINEERS LAND SURVEYORS LAND PLANNING CONSULTANTS

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NATIONAL DAM INSPECTION PROGRAM

PHASE I INSPECTION REPORT

NAME OF DAM: WEST MILLPOND DAM, ID NO. NY 01060

SECTION 1

PROJECT INFORMATION

1.1 GENERAL

a. Authority

The National Dam Inspection Act, Public Law 92-367, August 8, 1972, authorized the Secretary of the Army through the Corps of Engineers to initiate a national program of dam inspection throughout the United States. The New York District of the Corps of Engineers has been assigned the responsibility of supervising the inspection of dams within New York State. C. T. Male Associates, P.C., has been retained by the New York District to inspect and report on selected dams in the State of New York. Authorization and notice to proceed was issued to C. T. Male Associates, P.C., under a letter from Michael A. Jezior, LTC, Corps of Engineers. Contract No. DACW51-81-C-0014 has been assigned by the Corps of Engineers for this work.

b. Purpose of Inspection

The purpose of the inspection program is to perform technical inspection and evaluation of non-Federal dams to identify conditions which threaten the public, and thus permit correction in a timely manner by non-Federal interests.

1.2 DESCRIPTION OF PROJECT

a. Location

The dam is located on Meco Creek, a tributary of Cayadutta Creek, in the City of Gloversville. The dam at its maximum section is at Latitude 43 degrees - 3.0 minutes North, Longitude 74 degrees - 21.9 minutes West.

Access to the dam is via State Route 29A west from the City of Gloversville (see Vicinity Map).

47 The official name of the dam is West Millpond Dam and the official name of the impoundment is West Millpond. In the past the dam has also been known as the West Mill C Dam and the Daniel Hays Dam.

b. Description of Dam and Appurtenances

West Millpond Dam is an earthen embankment about 24 feet high and about 190 feet long, with a crest width that varies between 10 and 20 feet. There is a central chute spillway section, which appears to consist of an earth or rock fill paved over with concrete and confined between upstream and downstream stone masonry retaining walls. (Sketches in old inspection reports indicate that the spillway may have comprised a rock or soil-filled timber crib at one time, and also that the chute may have been plank-lined.) The upstream side of the embankment is retained by a concrete-faced stone masonry retaining wall. Both abutments appear to consist of soil, and the bottom of the channel immediately downstream of the dam is covered with boulders, gravel, and sand.

The concrete-paved chute spillway is 56.5 feet wide at the upstream side of the dam and narrows to about 43 feet at the downstream end of the chute. The chute is inclined about 5H:1V downstream and the spillway crest is about 2.6 feet below the top of dam. At the right downstream end of the spillway there is a concrete-capped stone masonry "step". The downstream end of the spillway is about 16 feet above the channel downstream of the spillway.

The dam has a wood-framed gate house located just upstream of the dam, just to the right of the spillway. Inside the gate house there is water treatment equipment, a wooden lever mechanism for operating the outlet pipe flap gate, and a rising stem floor stand, with handwheel, for the valve on the water supply main.

The outlet pipe for the reservoir is a 27-inch-diameter cast iron pipe with a flap gate at its upstream end. The outlet pipe discharges to the top of the stone masonry "step" at the right downstream end of the spillway.

The water supply main from the reservoir is an 18-inch-diameter cast iron pipe from the reservoir to the Owner's plant about 3,500 feet downstream in Gloversville. This pipe is valved at the plant as well as at its upstream end under the gate house.

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c. Size Classification

In accordance with Recommended Guidelines (Reference 1), West Millpond Dam is classified as "small" in size because its maximum storage capacity at the top of dam is 256 acre-feet (within the 50 to 1,000-acre-foot range). The height of the dam is about 24 feet.

d. Hazard Classification

In accordance with Recommended Guidelines (Reference 1), West Millpond Dam is classified as having a "high" hazard potential. This is because it is judged that failure of the dam would significantly increase flows downstream which could cause loss of

more than a few human lives and appreciable property damage. Downstream development that could be damaged or destroyed by a dam failure includes: a mill building located immediately downstream of the dam to the left of the spillway (a portion of this building extends over the downstream channel about 50 feet from the dam); several tannery buildings located near the stream about 300 feet downstream; a bridge crossing for State Route 29A about 400 feet from the dam; and several houses located near the stream about 800 feet from the dam. Further downstream from the dam the stream flows through residential and industrial areas of the City of Gloversville. About 3500 feet from the dam the stream flows along side the Owner's plant (vertical drop from the spillway crest to the Owner's plant is about 35 feet).

e. Ownership

The dam is believed to have been constructed around 1870 for the Daniel Hays Company. Presently the dam and pond are owned by:

Rovel Aqua, Inc.  
P.O. Box 753  
111 Woodside Avenue  
Gloversville, New York 12078

Attn: Chris Chiappa, Chief Engineer  
(518) 725-8691

f. Operator

Day-to-day operation of the dam is the responsibility of:

Richard McMillan, Sr., Foreman  
(same address as above)  
(518) 725-8691

g. Purpose of Dam

The dam was originally used by the present Owner to impound process water for dyeing operations. Presently the pond is used as a process water supply for air pollution control and air conditioning equipment at the Owner's textile plant at 111 Woodside Avenue, Gloversville, about 3500 feet downstream of the dam.

h. Design and Construction History

It is believed that the dam was built around 1870 for the Daniel Hays Company. The designer and construction contractor for the dam are not known. No records concerning the design or construction of the dam could be found.

In 1912/1913 portions of the upstream side of the dam were faced with concrete and the top of the dam was lowered about



a foot. In 1918/1919 the spillway of the dam was widened. In the 1940's the spillway section was paved with concrete and the 18-inch supply main was installed. In 1973 the outlet pipe was made operational and concrete surfaces at the dam were repaired.

There is no knowledge or record of other construction, modification, or major repair of the dam. Refer to Section 2 of this report, as well as to the Engineering Data Checklist in Appendix F2, for a complete discussion of the design and construction history. Selected drawings and other engineering data are included in Appendices F3 and G.

#### i. Normal Operating Procedures

The dam site is visited several times a week by the Operator. Normally the gate on the 27-inch outlet pipe is closed and the water level is maintained at about the spillway crest. The gate on the outlet pipe presently leaks at an estimated rate of about 500 gpm. The valve in the gate house on the 18-inch supply main is normally fully open. An 8-inch valve at the downstream end of the main at the Owner's plant is normally only a quarter open and bypasses flow back to the creek.

#### 1.3 PERTINENT DATA

a. <u>Drainage Area</u> (square miles)	4.90
b. <u>Discharge at Dam Site</u> (cfs)	
Spillway (W.S. at top of dam)	730
Outlet Pipe (gate normally closed, estimated potential w/W.S. at spillway crest)	54
Water Supply Main (normally partially open)	Unknown
Maximum Known Flood (estimated at 2.5 feet over spillway crest in April 1975)	690 ±

#### c. Elevation (feet - NGVD)

All elevations are based on a water surface elevation for the pond from the "Characteristics of New York Lakes (Gazetteer)" (Reference 25) of EL 835, assumed to be the spillway crest, and are in feet above mean sea level NGVD (National Geodetic Vertical Datum of 1929).

Top of Dam (low point)	837.6 ±
Design High Water	Unknown
Spillway Crest (normal pool)	835
Entrance Inverts of Outlets	
Outlet Pipe	826 ±
Water Supply Main	No Data

d. <u>Reservoir Length</u> (feet) - at spillway crest	2,400 ±
---	---------

- e. Reservoir Surface Area (acres)  
     Top of Dam 55 +  
     Spillway Crest 26.3
- f. Reservoir Storage (acre-feet)  
     Top of Dam 256  
     Spillway Crest 123
- g. Dam  
     Type - Earthen embankment.  
     Length - About 190 feet (including spillway).  
     Height - About 24 feet.  
     Top Width - Varies from 10 to 20 feet.  
     Side Slopes - Vertical, retained by stone masonry retaining walls.  
     Zoning - Unknown.  
     Impervious Core - Unknown.  
     Cutoff - Unknown.  
     Grout Curtain - Unknown.
- h. Spillway  
     Type - Concrete-paved chute spillway.  
     Length of Weir - 56.5 feet.  
     Upstream Channel - Concrete-paved section slopes up from reservoir bottom to weir crest.  
     Downstream Channel - Chute narrows to 43 feet downstream of weir crest, slopes about 5H:1V downstream, and drops off at end about 16 feet into narrow stream channel.
- i. Outlet Works
- 1) Outlet Pipe  
     Size - 27-inch diameter.  
     Description - Cast iron pipe from under front of gate house discharges at stone masonry "step" at end of spillway section.  
     Control - Flap gate on upstream end operated by wooden lever in gate house.
- 2) Water Supply Main  
     Size - 18-inch diameter (at dam).  
     Description - Cast iron pipe from under front of gate house to plant in Gloversville, about 3500 feet long.  
     Control - 18-inch valve on upstream end with rising stem floor stand with handwheel in gate house. Also 8-inch valve in line at plant.

## SECTION 2

### ENGINEERING DATA

#### 2.1 DESIGN DATA

##### a. Geology

There was no geologic information available in the design data for this dam. The following information was obtained from current geologic maps and publications for this region (References 26, 27, and 28), as well as from the site visit.

West Millpond Dam is located within the Mohawk-Hudson Lowlands of the Appalachian Plateaus Province. Bedrock in the vicinity of the dam consists of shale which is of Middle Ordovician age. With respect to regional geologic structure, the dam is located at the northern fringe of the basin rocks underlying the Catskill Mountains and Plateaus region, where erosion of weaker rock types has exposed beds of generally flat-lying sedimentary sequences. With respect to the soils that overlie bedrock, the dam is located between two east-west trending hills which are part of a belt of such hills that are interpreted to comprise a glacial end moraine and are believed to consist primarily of glacial till.

##### b. Subsurface Investigations

No records of subsurface investigations are available for this dam.

##### c. Dam and Appurtenances

It is believed that the dam was built around 1870 for the Daniels Hays Company. The designer of the dam is not known and no records concerning its design could be found.

#### 2.2 CONSTRUCTION HISTORY

##### a. Initial Construction

The original construction contractor for the dam is not known. No records concerning the original construction of the dam and appurtenances are known to exist.

A brief review of the known construction history, as can be determined from the available data and the Owner, can be found starting on Appendix F2-2.

330 b. Modifications, Repairs, and Maintenance

In 1912/1913 portions of the upstream side of the dam were faced with concrete and the top of dam was lowered about a foot (see Appendix F3-1). In 1918/1919 the spillway of the dam was widened. In the 1940's the spillway section was paved with concrete and the 18-inch cast iron supply main was installed inside of an old 5-foot sluice from the dam.

In 1973 the gate on the 27-inch outlet pipe was made operational. Concrete patching of the spillway training walls and the retaining wall to the left of the spillway was also performed at this time. Thomas Randall, a local mason contractor no longer in business, performed the concrete repair work.

c. Pending Remedial Work

There are no known plans for any remedial work at the dam.

2.3 OPERATION RECORD

a. Inspections

In 1979 the Owner had the dam inspected by Charles R. Ackerbauer, P.E. In a letter dated July 17, 1979 (see Appendix F3-23) concerning the inspection, the engineer found the dam "to be sound and in no danger of collapse." The letter also suggested to the Owner that "as part of a routine maintenance program the concrete and masonry should be inspected yearly by your staff and any repairs necessary should be promptly attended to."

Between 1913 and 1919 the dam was inspected four times by the New York State Conservation Commission (see Appendices F3-2 to F3-17). The reports for these inspections all note that the dam was in good condition. The last report also indicated that erosion of the dam was occurring to the right of the spillway. Appendix F3-18 contains a photo of the spillway of the dam, taken on May 19, 1919, the date of the last Conservation Commission Inspection.

In an inspection report by the NYS-DEC dated September 18, 1970 (see Appendix F3-20), the outlet works and mechanical equipment at the dam were noted as needing maintenance. The upstream concrete walls were also noted as being cracked. The report also indicated that the dam received no routine maintenance.

732 On July 12, 1979 the dam was reinspected by the NYS-DEC and the condition of the dam was the same as it was for the September 18, 1970 inspection. A letter to the Owner concerning the 1979 inspection, dated July 18, 1979 (see Appendix F3-24), noted the following defects: tree and brush growth on the dam, displaced stone masonry, and deteriorated concrete. The letter also recommended that the defects be repaired and the dam be maintained on a regular basis.

An inspection report by the NYS-DEC, dated May 6, 1980 (see Appendix F3-25), indicated that there was tree growth on the embankment and seepage through stone portions of the dam. The report stated that "No defects (were) observed beyond normal maintenance."

b. Performance Observations

Other than the observations made in the various inspection reports and correspondence concerning the dam (see Appendix F3) there are no other known records of performance observations.

c. Water Levels and Discharges

There are no known records of water levels or discharges at the dam.

d. Past Floods and Previous Failures

According to the Operator, the highest known flood level at the dam occurred due to a storm in April 1975. The water level in the reservoir rose to within 1.5 inches of the low point of the top of dam (top of concrete wall just to right of gate house). Based on field measurements this flood level corresponds to about 2.5 feet above the spillway crest.

2.4 EVALUATION

a. Availability

As listed on Appendix F1, various engineering data and records are available in the files of the Owner, the Dam Safety Section of the NYS-DEC, and the Division of Fish and Wildlife of the NYS-DEC. This data was reviewed, and copies of the records significant to the dam are included in chronological order in Appendices F3 and G. Appendix F2, Checklist for General Engineering Data and Interview with Dam Owner, also contains pertinent engineering information.

b. Adequacy

Available data consisted of inspection reports, correspondence, general data from the Owner, an old photograph, a map of the reservoir, and a sketch with pond depths. Such data as design/construction drawings, record drawings, specifications, design calculations, data on foundation and embankment soils, and operation and performance data were not available. The lack of such in-depth engineering data does not permit a comprehensive review. Therefore, the available data was not adequate by itself to permit an assessment of the dam.

c. Validity

The limited data available appears to be valid.

## SECTION 3

### VISUAL INSPECTION

#### 3.1 FINDINGS

##### a. General

West Millpond Dam was inspected on June 3, 1981. The inspection party (see Appendix B-1) was accompanied by two representatives of the Owner: Chris Chiappa, Chief Engineer, and Richard McMillan, Sr., Operator. The weather was cloudy and mild, with rain occurring late in the afternoon. The water surface was about one inch below the spillway crest, or at about EL 834.9, at the time of the inspection. The Visual Inspection Checklist is included as Appendix B, while selected photos taken during the inspection are included as Appendix A and as the Overview Photo at the beginning of this report. Appendix A-1 is a photo index map.

##### b. Dam

There is no evidence of any major sloughs or slides on the embankment.

Crest - The crest of the dam is covered with grass over much of its length (see Photo A-2A), but there is a section near the left abutment which is covered with sand and is practically bare of vegetation (see Photo A-2B). There is an irregular depression on the crest, about one foot deep and 5 feet in diameter, 30 feet left of the spillway. There are also depressions along the upstream side of the crest next to both the right (see Photo A-3A) and left (see Photo A-3B) sides of the spillway. The apparent remains of a foundation wall for an ice house are visible on the crest of the embankment to the right of the spillway (see Photo A-4A).

Upstream Slope - The upstream side of the embankment is retained by a vertical, concrete-faced stone masonry wall. This wall is tilted and out of alignment at several locations (see Photo A-2A). The concrete portion of the wall is badly eroded and spalled along its upstream face (see Photos A-6B and A-7B). This deterioration is worst at about the normal waterline (spillway crest) and along the top of the wall. In places the concrete is also cracked or missing. The stone masonry portion of the wall is also deteriorated in some spots.

Downstream Slope - The downstream slope of the embankment to the right of the spillway is covered with grass on its upper portion (see Photo A-6B) and with trees and brush on its downstream portion. There is one slightly wet and soft area near the downstream toe of the embankment on the right side of the downstream channel

about 8 feet above tailwater level. To the left of the spillway, there appear to be remnants of a vertical dry stone masonry wall which retains the downstream side of the embankment immediately adjacent to the spillway (see Photo A-5A). Farther left the downstream slope of the embankment is covered with trees and brush (see Photo A-7A), stumps (see Photo A-5B), and is locally bare of vegetation due to trespassing (see Photo A-4B).

Zone Next to Downstream Toe - Several large trees are growing in the zone next to the downstream toe of the embankment to the right of the spillway. There is a mill building at the downstream toe of the embankment to the left of the spillway. The stone masonry at the toe of the dam, below the end of spillway, is in good condition (see Photo A-8A and Overview Photo).

Abutments - Both abutments appear to be soil. No bedrock outcrops were observed in the vicinity of the dam.

c. Appurtenant Structures

1) Gate House and Outlet Works

The dam has a wood-framed gate house, set on a concrete foundation, located in the reservoir just to the right of the spillway (see Photos A-6A and A-6B). The aluminum roofing of the gate house is partially missing. Its concrete foundation has minor efflorescence and there is some minor erosion of the concrete at the waterline. The gate house contains water treatment equipment for treating water released to the Owner's plant and it is normally kept locked. Also inside the gate house there is a control mechanism for the flap gate on the upstream end of the 27-inch-diameter outlet pipe and a rising stem floor stand with handwheel for the valve on the 18-inch-diameter water supply main (see Photo A-8B).

The 27-inch-diameter cast iron outlet pipe discharges over a concrete-capped stone masonry "step" at the bottom right side of the spillway (see Photos A-8A and A-9A). Some joints of the outlet pipe are offset by as much as one inch (see Photo A-9B). No seepage was observed and the pipe appeared to be in good condition. The concrete cap over the stone masonry at the downstream end of the pipe was, however, eroded due to the flow of water from the outlet.

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The flap gate control mechanism for the outlet pipe is a wooden lever with a steel rod on its end that is attached to the gate. The gate leaks somewhat when closed as it was during the inspection and its physical condition was not observable. Leakage was estimated at about 500 gpm.

The 18-inch-diameter cast iron water supply main supplies process water to the Owner's plant. The condition of this pipe was not observable. The floor stand control for the valve on the supply main is rusted, but operable and well lubricated.



## 2) Spillway and Discharge Channel

The dam has a concrete-paved chute spillway located near the center of the dam (see Photos A-6A, A-6B, and A-8A). The spillway bottom is generally in good condition with only minor surface wear of the concrete.

The left spillway training wall shows evidence of cold pour joints and there is some hairline cracking and surface wear of the concrete. There is erosion of the wall at its upstream end near the waterline (see Photo A-7B). There are also 4 small cracks in the wall for its full height.

The right spillway training wall has some hairline cracking and efflorescence. The concrete of the wall is spalled at the waterline and some repairs to the spalled areas of the wall have been made. There are 5 small cracks in this wall for its full height.

Immediately downstream of the right end of the chute spillway there is a concrete-capped stone masonry "step" (see Photo A-8A). Flow from the outlet pipe discharges onto this "step" and flow from the spillway discharges over this area. There are stones and boulders at the toe of the dam, below the spillway (see Overview Photo).

### d. Reservoir Area

The lake appears to be filling in with sediment and organic matter. The Owner indicated that the pond is much shallower now than it used to be due to sedimentation. The slopes along the reservoir perimeter are low and flat, and no evidence of slope instability was observed.

### e. Downstream Channel

The bottom of the downstream channel is covered with boulders, gravel, and sand. There are also some logs in the channel between the dam and the mill building which spans the channel immediately downstream of the dam (see Photo A-10B).

## 3.2 EVALUATION

Lack of vegetation on the crest of the dam near the left abutment renders that section susceptible to erosion if the dam should be overtopped.

Subsidence of the crest of the dam next to both the right and left sides of the spillway and at one location 30 feet left of the spillway is indicative of some unknown problem which might adversely affect the stability of the embankment.

The concrete-faced stone masonry wall which retains the upstream side of the embankment is tilted and out of alignment at several locations. The concrete facing and stone masonry of this wall is also severely deteriorated.

Trees and brush growing on the downstream slope of the embankment and in the zone next to the downstream toe may lead to seepage and piping (internal erosion) problems if a tree blows over and pulls out its roots or if a tree dies and its roots rot. The roots of stumps on the downstream slope may also cause seepage or piping problems when they rot.

Trespassing and a consequent lack of vegetation in paths on the downstream slope of the embankment left of the spillway may result in further erosion and possible breaching of the dam if not controlled.

## SECTION 4

## OPERATION AND MAINTENANCE PROCEDURES

4.1 OPERATION PROCEDURES

There are no written operation procedures for the dam.

West Millpond is used as a process water supply for air pollution control and air conditioning equipment at the Owner's facilities located at 111 Woodside Avenue, Gloversville. Normally the gate on the 27-inch outlet pipe is closed and the water level is maintained at about the spillway crest. The gate on the outlet pipe presently leaks at an estimated rate of about 500 gpm. The valve in the gate house for the 18-inch supply main to the Owner's plant is normally fully open. An 8-inch valve on the main at the plant, however, is usually only a quarter open, and bypasses flow back to the creek. The process water for the plant is drawn off, upstream of this valve, by a 2-inch supply line.

At the time of the inspection the reservoir level was about one inch lower than the spillway crest, with outflow through the outlet pipe estimated to be about 1 cfs.

4.2 MAINTENANCE OF DAM AND OPERATING FACILITIES

There are no written maintenance procedures for the dam.

The dam site is visited several times a week by the Operator. Brush has been cut yearly from the slopes since about 1972. The outlet pipe gate and the water supply main valve at the dam are exercised once a year. They were last operated this past spring. The reservoir was last drained in the spring of 1980 for algae control and then refilled.

4.3 EMERGENCY ACTION PLAN AND WARNING SYSTEM

There is no emergency action plan and warning system for the dam.

4.4 EVALUATION

Maintenance of the dam is unsatisfactory, even though there have been repairs and some regular maintenance to the dam over the past several years. Some maintenance items, such as brush and tree growth on the downstream slopes, have been neglected. The upstream retaining wall of the dam has also been allowed to deteriorate. However, the Owner has exercised and maintained the operating facilities at the dam. Nevertheless, more effective operation and maintenance procedures need to be developed and implemented by the Owner in order to avoid deterioration of the dam.

The Owner should develop an emergency action plan outlining action to be taken to minimize the downstream effects of an emergency, together with an effective warning system.

## SECTION 5

## HYDROLOGY AND HYDRAULICS

5.1 DRAINAGE AREA CHARACTERISTICS

West Millpond Dam and West Millpond are located on Meco Creek in central New York. About one mile downstream of the dam the creek joins Cayadutta Creek. Cayadutta Creek drains to the south and discharges into the Mohawk River.

The total drainage area at the dam is 4.90 square miles, of which about 0.041 square miles (26.3 acres), or less than one percent, is actual reservoir surface at the spillway crest. The topography of the drainage area is characterized by slopes of from 5% to 15%. Elevations in the drainage area vary from EL 835 to EL 1520. (See Appendices C-5 and C-6).

5.2 ANALYSIS CRITERIA

The U.S. Army Corps of Engineers Hydrologic Engineering Center's Program HEC-1 DB (Reference 3) was used to develop the test flood hydrology and perform the reservoir routing.

The purpose of this analysis was to evaluate the dam and spillway with respect to their surcharge storage and spillway capacity. Accordingly, it was assumed that the water surface was at the spillway crest at the start of the flood routing. In addition, the outlet pipe was assumed closed, as it is normally. The water supply main, normally open, was neglected for the purposes of this analysis because its capacity is very small compared to the spillway.

A constant base flow of 2 cfs per square mile was chosen to represent average conditions in the drainage area and was inputted into the program for all subareas.

The index PMP (probable maximum precipitation) inputted to the HEC-1 DB program was 19 inches for a 24-hour duration all-season storm over a 200-square-mile basin, according to HMR 33 (Reference 4). Maximum 6-hour, 12-hour, 24-hour, and 48-hour precipitation for the actual size of the drainage area (same for 10 square miles or less) were inputted to the program as percentages of the index PMF in accordance with HMR 33. A storm reduction coefficient was then applied internally by the program in order to transpose or center the storm over the actual total drainage area. Thus, the corrected 48-hour PMP for the actual total drainage area became 21.6 inches. All rainfall was distributed using the Standard Project Storm arrangement embedded in the program.

32. Appendix C-7 summarizes the subarea, loss rate, and unit hydrograph data inputted to the program. Only two subareas were used. Subarea 1 consists of all the drainage area around the reservoir, and Subarea 2 consists of just the reservoir surface. For the land in Subarea 1, loss rates were assumed to be 1.0 inch initially and a constant 0.1 inch per hour thereafter. A Snyder basin coefficient was assumed for average conditions and a Snyder peaking coefficient was chosen from the 1976 Upper Hudson and Mohawk River Basins Hydrologic Flood Routing Models (Reference 20). A conservative standard lag time was computed. The program uses the inputted lag time and Snyder peaking coefficient to solve by iteration for approximate Clark coefficients which are then used to calculate the runoff hydrograph.

For the reservoir surface making up Subarea 2, loss rates were set to zero so that rainfall would equal rainfall excess, or runoff. Assuming no delay in the rainfall/runoff response, a constant unit hydrograph for a rainfall duration equal to the HEC-1 DB calculation interval was developed per Appendix C-7 and inputted to the program.

The floods selected for analysis were the PMF (probable maximum flood) and 1/2 PMF. Floods as ratios of the PMF (e.g., 1/2 PMF) were taken as ratios of runoff, not of precipitation. Peak inflow to West Millpond is about 8,320 cfs or 1,698 csm (cfs per square mile) for the PMF, and about 4,160 cfs (849 csm) for the 1/2 PMF. Peak outflows are reduced by reservoir routing to about 7,860 cfs (1,604 csm) for the PMF, and about 3,950 cfs (806 csm) for the 1/2 PMF.

### 5.3 RESERVOIR CAPACITY

Storage capacity data for the reservoir was developed using USGS contour mapping (see Appendix C-5) and depth information on the pond (see Appendices G-1 and F3-19). Area measurements inside contour elevations were obtained from the USGS mapping, a reservoir area of zero was assumed for the bottom of the pond (EL 825), and the capacity of the reservoir at various elevations was then computed by hand using the method of conic sections. The reservoir capacity at the spillway crest, EL 835, was obtained from data provided by the Owner (see Appendix F3-26). The computations appear on Appendix C-6.

At the spillway crest, EL 835, the reservoir has a capacity of about 123 acre-feet. At the top of dam, EL 837.6, the reservoir has a capacity of about 256 acre-feet. Surcharge storage between the spillway crest and top of dam amounts to 133 acre-feet, or about 0.5 inches of runoff from the total 4.90-square-mile drainage area. Therefore, the reservoir has little capacity to attenuate peak inflow.

### 82. 5.4 SPILLWAY CAPACITY

The dam has a 56.5-foot-long chute spillway near the center of the dam. The low point of the top of dam is about 2.6 feet higher than the spillway crest.

The discharge capacity for the spillway was computed assuming critical flow over an ideal broad-crested weir. Reduction in discharge capacity due to abutment contractions was neglected. A hand tabulation of the spillway discharge computations is presented on Appendix C-8. With water 2.6 feet over the spillway crest (i.e., water level at top of dam) the spillway discharges about 730 cfs.

Total discharge from the dam consists of flow from just the spillway with the outlet pipe and water supply main assumed closed as previously discussed in Section 5.2. Flow over the dam for the overtopping condition was also modeled as an ideal broad-crested weir. The discharge computations for the dam and spillway were done directly by the HEC-1 DB program using the inputted weir parameters. A tabulation of the input and hand-computed results appears as Appendix C-8.

### 5.5 FLOODS OF RECORD

As noted in Section 2.3d, the flood of record, due to a storm event in April 1975, was about 2.5 feet over the spillway crest. Using the spillway capacity data developed in Section 5.4, the corresponding flood discharge is estimated to have been about 690 cfs (141 csm), or only about 9% of the PMF peak outflow predicted.

### 5.6 OVERTOPPING POTENTIAL

The results of the overtopping analysis using the HEC-1 DB program are summarized in Table 5.1. The overtopping analysis computer input and output for the PMF and 1/2 PMF are included starting on Appendix C-9.

As noted from Table 5.1, the PMF overtops the dam by 4.8 feet maximum and 1/2 PMF overtops the dam by 2.7 feet maximum, with durations of overtopping of 10 hours and 8.7 hours, respectively. Peak inflows are 8,320 cfs for the PMF and 4,160 cfs for the 1/2 PMF. Peak outflows are reduced by reservoir routing to 7,860 cfs for the PMF and to 3,950 cfs for the 1/2 PMF. Time to maximum stage, or the time from the start of the 48-hour storm to peak outflow, is about 44 hours for both flood events. The peak portions of the inflow and outflow hydrographs for the PMF and 1/2 PMF are shown by the computer plots on Appendices on C-15 and C-16. Total project discharge capacity at the top of dam is due to the spillway (outlet works closed) and is about 730 cfs, or only about 9% of the PMF peak outflow and about 18% of the 1/2 PMF peak outflow.

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### 5.7 EVALUATION

Maximum spillway discharge capacity (outlet works closed) is only about 9% of the PMF peak outflow. The 1/2 PMF would overtop the earth embankment and would probably cause failure. It is judged that failure due to overtopping would significantly increase the hazard to loss of life downstream from that which would exist just

TABLE 5.1  
WEST MILLPOND DAM  
OVERTOPPING ANALYSIS

CONDITIONS

Total Drainage Area = 4.90 square miles  
Start Routing at Spillway Crest EL 835  
Top of Dam EL 837.6  
Total Project Discharge Capacity at Top of Dam = 730 cfs ±  
due to spillway only. All outlets assumed closed.  
Some values rounded from computed results.

	PMF	1/2 PMF (a)
<u>INFLOW</u>		
48-hour Rainfall (inches)	21.6	12.7 (b)
48-hour Rainfall Excess (inches) (c)	17.9	9.0 (d)
Peak Inflow (cfs)	8,320	4,160
(csm)	1,698	849
<u>OUTFLOW</u>		
Peak Outflow (cfs)	7,860	3,950
(csm)	1,604	806
Time to Peak Outflow (hours)	43.5	43.5
Maximum Storage (acre-feet)	700	418
Max. W.S. Elevation (feet-NGVD)	842.4	840.3
Minimum Freeboard (feet)	overtopped	overtopped
Maximum Depth over Dam (feet)	4.8	2.7
Duration of Overtopping (hours)	10.0	8.7

- (a) One-half of PMF total runoff, including base flow. For PMF base flow = 2 cfs per square mile = 10 cfs ±.
- (b) Approximation assuming total losses are the same as for the PMF.
- (c) Rainfall Excess = Rainfall for the Reservoir Surface. For the rest of the drainage area, losses are assumed to be 1.0 inch initially and 0.1 inch per hour thereafter.
- (d) Equal to one-half of PMF value.



prior to failure. Therefore, in accordance with Corps of Engineers' screening criteria for review of spillway adequacy, spillway capacity is considered "seriously inadequate" and the dam is assessed as "unsafe, non-emergency".

## SECTION 6

## STRUCTURAL STABILITY

6.1 EVALUATION OF STRUCTURAL STABILITYa. Visual Observations

The following visual observations, which are described in detail in Section 3, are indicative of potential long-term stability problems at West Millpond Dam:

- 1) Lack of vegetation for erosion protection on the crest of the dam near the left abutment.
- 2) Subsidence of the crest of the dam at three locations.
- 3) Tilting and irregular alignment of the concrete-faced stone masonry wall which retains the upstream side of the embankment.
- 4) Trees and brush growing on the downstream slope and in the zone adjacent to the downstream toe.
- 5) Lack of vegetation locally due to trespassing on the downstream slope.

b. Design and Construction Data

No records of design and construction data for this dam are available.

c. Operating Records

Various inspections reports by the NYS-DEC (see Appendix F3) noted that there were trees and brush growing on the embankment, that the upstream face of the dam was deteriorating, and that these were unacceptable conditions.

d. Post-Construction Changes

A letter dated September 9, 1913 from the Owner to the N.Y. State Conservation Commission (see Appendix F3-1) indicates that "a part of the North wall of the Pond and the front of the Dam was faced with Concrete so as to stop leaking." Crude sketches of the dam, appended to inspection reports dated 1917, 1918, and 1919 (see Appendices F3-3 to F3-16) indicate that changes may have been made to the spillway structure, but the details of the changes cannot be ascertained from the sketches.

e. Seismic Stability

This dam is in Seismic Zone 2. According to the Recommended Guidelines (Reference 1), a seismic stability analysis is not required.

6.2 STABILITY ANALYSIS

A structural stability analysis is not required because there are no gravity structures at this dam to analyze.

## SECTION 7

### ASSESSMENT AND RECOMMENDATIONS

#### 7.1 ASSESSMENT

##### a. Safety

Visual inspection of West Millpond Dam revealed the following deficiencies which affect the safety of the dam:

- 1) Trees and brush growing on the embankment and in the zone adjacent to the downstream toe.
- 2) Subsidence of the crest of the dam at three locations.
- 3) Tilting and irregular alignment of the concrete-faced stone masonry wall which retains the upstream side of the embankment and general deterioration of this wall.
- 4) Lack of vegetation locally due to trespassing on the downstream slope.
- 5) Lack of erosion protection on the crest of the dam near the left abutment.

Hydrologic and hydraulic analysis indicates that maximum spillway discharge capacity is only about 9% of the PMF peak outflow. The 1/2 PMF would overtop the earth embankment and would probably cause failure. It is judged that failure due to overtopping would significantly increase the hazard to loss of life downstream from that which would exist just prior to failure. Therefore, in accordance with Corps of Engineers' screening criteria for review of spillway adequacy, spillway capacity is considered "seriously inadequate" and the dam is assessed as "unsafe, non-emergency".

##### b. Adequacy of Information

Available information, together with that gathered during the visual inspection, is considered adequate for this Phase I Inspection.

##### c. Need for Additional Investigations

The following detailed engineering investigations should be performed by a registered professional engineer qualified by training and experience in the design of dams:

- 48
- 1) Perform a detailed hydrologic and hydraulic analysis to better assess spillway adequacy. This should include a more accurate determination of the site specific characteristics of the watershed.
  - 2) Investigate the causes of subsidence of the crest of the dam at various locations.
  - 3) Investigate the causes of tilting and poor alignment of the concrete-faced stone masonry wall which retains the upstream side of the embankment.

d. Urgency

As recommended below in Section 7.2a, a program to visually inspect the dam at least once a month should be instituted immediately. As recommended below in Section 7.2b, development of a surveillance program and an emergency action plan should be completed within 3 months after receipt of this Phase I Inspection Report by the Owner. While the action plan is being developed, and within 3 months after receipt of this report by the Owner, the investigations recommended above in Section 7.1c should be started.

Any remedial work deemed necessary as a result of these investigations should be completed within 18 months after receipt of this report by the Owner.

Measures recommended below in Section 7.2c should be completed within 12 months after receipt of this report by the Owner.

7.2 RECOMMENDED MEASURES

The following work should be performed by the Owner. Where engineering assistance is indicated, the Owner should engage a registered professional engineer qualified by training and experience in the design of dams. Assistance by such an engineer may also be useful for some of the other work.

a. Complete Immediately

Institute a program to visually inspect - not just casually look at - the dam and its appurtenances at least once a month.

b. Complete Within 3 Months

Develop a surveillance program for use during and immediately after heavy rainfall or snowmelt, and also an emergency action plan outlining action to be taken to minimize the downstream effects of an emergency, together with an effective warning system.

c. Complete Within 12 Months

- 1) Remove trees and brush and their root systems from the embankment and from a zone 25 feet wide next to the downstream toe in accordance with specifications and field observation of the work by an engineer. Backfilling the zones where stumps and roots have been removed should be done with proper material and procedures. Continue to keep these same areas clear by cutting, mowing, and cleanup at least annually.
- 2) Control trespassing on the embankment. A foot path on the downstream slope is bare of vegetation and eroded.
- 3) Provide erosion protection for the embankment in accordance with recommendations made by an engineer. There is a lack of erosion protection on the crest of the dam near the left abutment.
- 4) Repair the deteriorated concrete and stone masonry of the dam.
- 5) Dewater and inspect the outlet pipe gate and make repairs necessary to stop leakage and correct any other problems found.
- 6) Develop and implement effective routine operation and maintenance procedures for the dam and its appurtenances. The outlet pipe gate and the water supply main valve should be exercised regularly.
- 7) Institute a program of comprehensive technical inspection of the dam and its appurtenances by an engineer on a periodic basis of at least once every two years.

d. Complete Within 18 Months

The following remedial work should be completed by the Owner. A qualified, registered professional engineer should design and observe the construction of the remedial work.

- 1) Appropriate modifications as a result of the detailed hydrologic and hydraulic analysis.
- 2) Appropriate modifications as a result of investigating the causes of subsidence of the crest of the dam at various locations.
- 3) Appropriate modifications as a result of investigating the causes of tilting and poor alignment of the concrete-faced stone masonry wall which retains the upstream side of the embankment.

APPENDIX A  
PHOTOGRAPHS

LEFT

MILL BUILDING

OVERVIEW PHOTO

8A

5A

9A

9B

4B

5B

7A

3A

4A

8B

SPILLWAY

DEPRESSION

27" OUTLET PIPE

GATE HOUSE

18" WATER

1+12.5

0+56

DAM

DEPRESSION

3B

6B

7B

10B

0+00

WEST

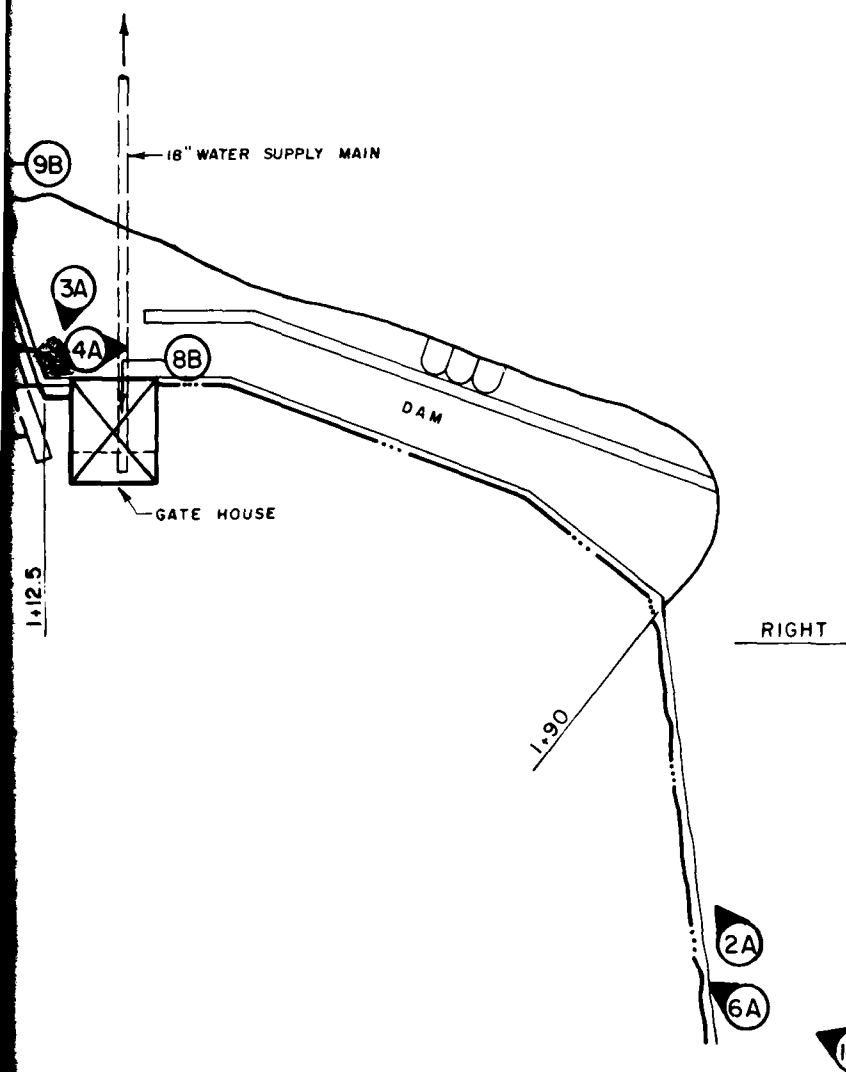
MILLPOND

2B

PROJECT



VIEW  
PHOTO



# WEST MILLPOND DAM PHOTO INDEX MAP

CITY OF GLOVERSVILLE

FULTON CO., N.Y.

SCALE: NONE

DATE JULY 1981



C. T. MALE ASSOCIATES, P.C.

3000 TROY ROAD, SCHENECTADY, N.Y. 12309

PROFESSIONAL ENGINEERS LAND SURVEYORS LAND PLANNING CONSULTANTS

PROJECT NO. 58-01-00014/80.854

A-1

DWG. NO. 81-24



A-2A Upstream face of dam viewed from right bank of reservoir. Concrete-faced wall at upstream side of embankment is considerably cracked, spalled, and displaced - 6/3/81



← Gate House

A-2B Left bank of reservoir looking toward dam. Gate house in right part of photo - 6/3/81



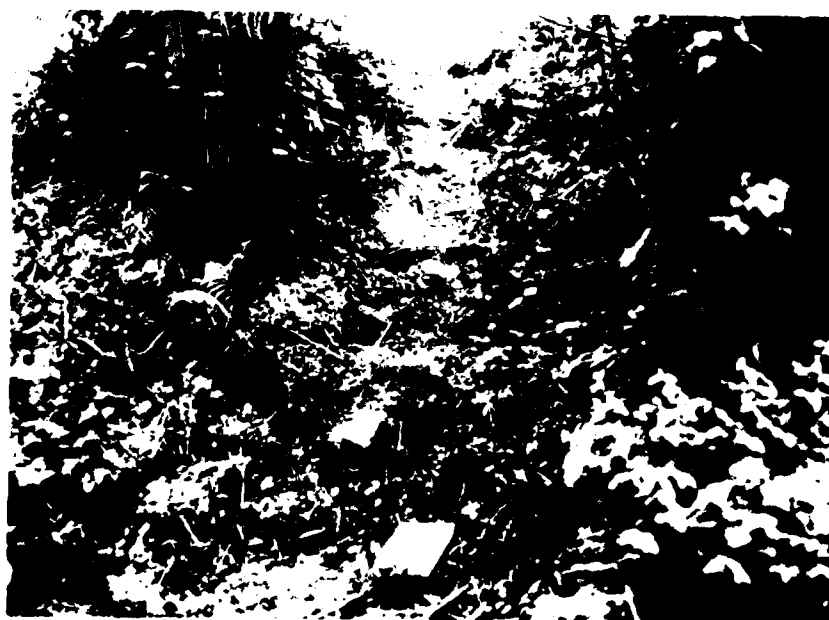
A-3A Apparent erosion or lost ground on downstream side of upstream retaining wall next to right side of spillway - 6/3/81



A-3B Apparent subsidence of about 8 inches next to retaining wall on upstream side of embankment close to left end of spillway. 6/3/81



A-4A Top of dam viewed from right side of gate house. Concrete-faced masonry retaining wall is on upstream side of crest and old foundation wall is downstream of crest - 6/3/81



A-4B Footpath eroded into downstream slope about 20 feet to left of spillway - 6/3/81



A-5A Downstream face of spillway and dam at left side of downstream channel - 6/3/81



A-5B Tree stumps and underlying open stone masonry next to left end of spillway - 6/3/81



A-6A Upstream view of dam from right bank of reservoir. Gate house, spillway, and left portion of dam are from right to left in photo.  
6/3/81



A-6B Spillway crest and gate house viewed from left side of spillway.  
6/3/81



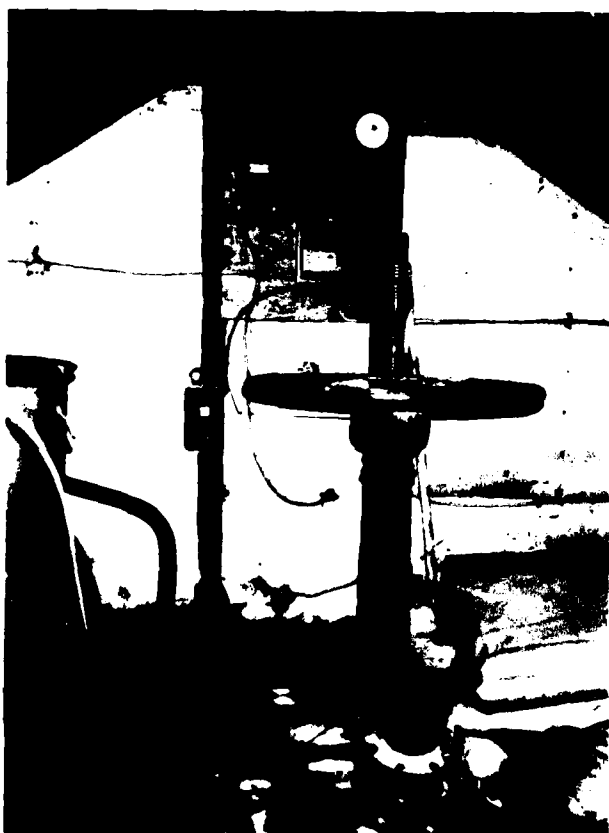
A-7A Downstream slope of embankment to left of spillway - 6/3/81



A-7B Left training wall contact with spillway bottom. Note erosion of concrete at base of training wall and deteriorated condition of upstream retaining wall of dam - 6/3/81



A-8A Spillway viewed from downstream. Gate house is at top center and end of outlet pipe is at left of photo - 6/3/81



A-8B Rising-stem floor stand with hand-wheel in gate house for water supply main. Lever control for outlet pipe is to left of floor stand and beyond right side of photo - 6-3/81





A-9A Downstream end of outlet pipe - 6/3/81



A-9B Inside of outlet pipe looking upstream - 6/3/81



A-10A Dam viewed from upstream - 6/3/81



A-10B Downstream channel viewed from center of spillway. Building spans channel immediately downstream of spillway. Note logs and debris in channel - 6/3/81

APPENDIX B  
VISUAL INSPECTION CHECKLIST

# PHASE I

## VISUAL INSPECTION CHECKLIST

### 1. BASIC DATA

#### a. General

Name of Dam West Millpond DAM

Fed. I.D.# NY01060 DEC Dam No. 172D - 392

River Basin MOHAWK

Location: ~~Town~~ CITY GLOVERSVILLE County FULTON

Stream Name MECO CREEK

Tributary of CAYADUTTA CREEK

Latitude (N) 43° 3.0' Longitude (W) 74° - 21.9'

Type of Dam EARTH

Hazard Classification HIGH

Date(s) of Inspection June 3, 1981

Weather Conditions OVERCAST + WARM

Reservoir Level at Time of Inspection EL 834.9 ±  
1" ± BELOW SPILLWAY CREST

b. Inspection Personnel (\*Recorder) THOMAS BENNEDUM - CTM,  
EDWIN VOPELAK JR\* - CTM, RONALD C. HIRSCHFELD\* - GEI

c. Persons Contacted (Including Title, Address & Phone No.)  
CHRIS CHIAPPA, CHIEF ENGINEER, ROVEL AQUA INC, P.O. BOX 753  
111 WOODSIDE DRIVE, GLOVERSVILLE, NY 12078 (518) 725-8691  
RICHARD MCMILLAN SR., FOREMAN (SAME ADDRESS + PHONE AS ABOVE)

d. History  
Date Constructed 1870 ± Date(s) Reconstructed 1912-1913  
1918-1919  
1940's  
Designer UNKNOWN  
Constructed By UNKNOWN FOR DANIEL HAYS CO., LEATHER TANNERY  
Owner ROVEL AQUA INC, P.O. BOX 753, 111 WOODSIDE DRIVE  
GLOVERSVILLE, N.Y. 12078 ATTN: CHRIS CHIAPPA, CHIEF ENGR (518) 725-8691

2. EMBANKMENT

## a. Characteristics

GEI 1) Embankment Material UnknownGEI 2) Cutoff Type UnknownGEI 3) Impervious Core UnknownGEI 4) Internal Drainage System UnknownGEI 5) Miscellaneous No comments

## GEI b. Crest

GEI 1) Vertical Alignment Irregular depression about one foot deep on crest 30 feet left of spillwayGEI 2) Horizontal Alignment Concrete-faced masonry wall which retains upstream side of embankment is tilted and out of alignment in several locations.GEI 3) Lateral Movement See b.(2), above.GEI 4) Surface Cracks None observedGEI 5) Miscellaneous No comments

## GEI c. Upstream Slope

GEI 1) Slope (Estimate H:V) VerticalGEI 2) Undesirable Growth or Debris, Animal Burrows None observedGEI 3) Sloughing, Subsidence or Depressions Not applicable

GEI 4) Slope Protection Concrete-faced stone-masonry wall

GEI 5) Surface Cracks or Movement at Toe Not visible beneath reservoir surface.

GEI d. Downstream Slope

GEI 1) Slope (Estimate - H:V) Variable; 1.5H:1V to 3H:1V

GEI 2) Undesirable Growth or Debris, Animal Burrows Trees, brush, and stumps on downstream slope

GEI 3) Sloughing, Subsidence or Depressions Footpaths bare of vegetation near left end of spillway

GEI 4) Surface Cracks or Movement at Toe None observed

GEI 5) Seepage Wet spot about 8 feet above tailwater elevation near right end of spillway.

GEI 6) External Drainage System (Ditches, Trenches, Blanket) None observed

GEI 7) Condition Around Outlet Structure Not applicable

GEI 8) Seepage Beyond Toe None observed.

GEI e. Abutments - Embankment Contact

GEI 1) Erosion at Contact None observedGEI 2) Seepage Along Contact None observed3. DRAINAGE SYSTEMGEI a. Description of System None observedGEI b. Condition of System Not applicableGEI c. Discharge from Drainage System Not applicable4. INSTRUMENTATION (Monumentation/Surveys, Observation Wells, Weirs, Piezometers, Etc.)None observed5. RESERVOIRGEI a. Slopes Flat slopes. No apparent stability problems.GEI b. Sedimentation Lake is filling with sediment and becoming a swampGEI c. Unusual Conditions Which Affect Dam None observed

6. AREA DOWNSTREAM OF DAM

- a. Downstream Hazard (No. of Homes, Highways, etc.) MILL BUILDING IMMEDIATELY D/S ON LEFT & OVER CHANNEL 50' D/S, TANNERY BLDG 300' D/S, NYS RTE #29A CROSSES STREAM 400' D/S, SEVERAL HOUSES ON STREAM BANK BOW'S D/S, THEN STREAM FLOWS THROUGH RESIDENTIAL + INDUSTRIAL AREA OF CITY.

GEI b. Seepage, Growth Trees growing on right bank of downstream channel

GEI c. Evidence of Movement Beyond Toe of Dam None observed.

- d. Condition of Downstream Channel Logs in channel. MILL BLDG ON LEFT BANK. 300' D/S MILL BLDG JUTS INTO CHANNEL, 50' D/S CHANNEL CONSTRICTED BY BLDG OVER CHANNEL, 300' D/S GOES UNDER NYS RTE #29A BRIDGE, CHANNEL VERY NARROW (10' AND LESS) D/S W/ CONCRETE WALLS AT BANKS.

7. SPILLWAY(S) (Including Discharge Channel)

- a. General CONCRETE PAVED CHUTE SPILLWAY IN CENTER OF DAM OVER OLD STONE FILLED CRIB SECTION IT IS BELIEVED. 56.5' WIDE AT CREST, 43' WIDE AT BOTTOM OF CHUTE OVER STONE MASONRY WALL @ D/S END. 11° SLOPE FROM CREST TO BOTTOM OF CHUTE, END OF CHUTE DROPS OFF INTO NATURAL CHANNEL. CHUTE HAS 3.5' HIGH CONCRETE TRAINING WALLS.

- b. Condition of Service Spillway — OVERALL GOOD CONDITION  
SPILLWAY BOTTOM — GOOD CONDITION, MINOR SURFACE WEAR OF CONCRETE, CONSTRUCTION JOINTS GOOD.  
LEFT TRAINING WALL — CONCRETE, POOR JOINTS EVIDENT (COLD JOINTS)  
SOME HAIRLINE CRACKING, SURFACE WEAR, EROSION AT U/S END AT WATERLINE IN STONE MASONRY.  
4 MINOR CRACKS, FULL HEIGHT OF WALL, 3 AT LOCATION OF PIPES EMBEDDED IN WALL.  
RIGHT TRAINING WALL — SOME HAIRLINE CRACKING + EFFLORESCENCE. SPALLING OF CONCRETE AT U/S WATERLINE. SOME SURFACE REPAIR OF SPALLED AREAS HAS BEEN DONE.

c. Condition of Auxiliary Spillway

5 MINOR CRACKS, FULL HEIGHT OF WALL, 2 AT LOCATION OF PIPES EMBEDDED IN WALL

c. N/A



Name of Dam West Millpond Dam Date June 3, 1981 6

- d. Condition of Discharge Channel CHUTE GOOD. BELOW CHUTE SECTION DROPS INTO CHANNEL. STEPPED SECTION OF STONE WALL AT D/S END RIGHT SIDE W/ DEBRIS IN STREAM CHANNEL AT D/S TOE. FURTHER D/S BUILDINGS ENCRDALH CHANNEL, SEE G.D.

8. RESERVOIR DRAIN/OUTLET

- a. Type: Pipe ☒ Conduit \_\_\_\_\_ Other \_\_\_\_\_
- b. Material: Concrete \_\_\_\_\_ Metal ☒ Other \_\_\_\_\_
- c. Size: 27" Length \_\_\_\_\_
- d. Invert Elevations: Entrance \_\_\_\_\_ Exit \_\_\_\_\_
- e. Physical Condition (Describe)
- Unobservable \_\_\_\_\_
- 1) Material CAST IRON PIPE 3' LENGTHS
- 2) Joints NO SEEPAGE OBSERVED Alignment SOME JOINTS OUT OF ALIGNMENT BY AS MUCH AS 1"
- 3) Structural Integrity APPEARS GOOD
- 4) Hydraulic Capability PIPE CAPACITY OKAY W/ NO TAIL WATER PROBLEMS. GATE AT U/S END HOWEVER MAY NOT OPEN FULL
- f. Means of Control: Gate ☒ Valve \_\_\_\_\_ Uncontrolled \_\_\_\_\_
- Operation: Operable ☒ Inoperable \_\_\_\_\_ Other \_\_\_\_\_
- Present Condition (Describe) FLAP GATE. HAS WOODEN LEVER W/ STEEL ROD ON END THAT IS ATTACHED TO GATE. WHEN LEVER IS DEPRESSED, GATE OPENS. GATE LEAKS SOMEWHAT. CONDITION NOT OBSERVABLE
- g. Other Outlets (water mains, diversion pipes) 18" WATER SUPPLY MAIN FOR PROCESS WATER TO OWNER'S PLANT - NORMALLY OPEN FULL. 18" RISING STEM FLOOR STAND W/ HANDWHEEL IN GATE HOUSE, RUSTED BUT OPERABLE + WELL LUBRICATED (18" CIP IS INSIDE OLD 5' DIA SLUICE AT DAM SITE). 8" VALVE AT D/S END AT PLANT ALSO CONTROLS THIS PIPE

SEE H+H  
DATA  
CHECKLIST  
APPENDIX C

9. STRUCTURAL D/S STONE MASONRY GOOD CONDITION, FOR SPILLWAY SEE 7.b, U/S WALL OF DAM DISCUSSED BELOW.a. Concrete Surfaces U/S CONCRETE CAPPED STONE MASONRY WALLW/ CONCRETE FACE - WALL BADLY ERODED & SPALLLED IN SPOTSALL ALONG U/S FACE, WORST AT WATER LINE & ON TOP, SOMEPLACE CONCRETE FACE COMPLETELY GONE & STONE MASONRY IS DETERIORATINGb. Structural Cracking CRACKS IN CONC & EXPOSED STONE MASONRYc. Movement - Horizontal & Vertical Alignment (Settlement) WALL IS IRREGULAR, BULGING & TILTING IN SPOTS, SOME CRACKS OFFSET BY MORE THAN 1"GEI d. Junctions with Abutments or Embankments Good conditionGEI e. Drains - Foundation, Joint, Face None observed5 - 15" CONCRETE PLUGS W/ BOLTS IN CENTER AT TOP OF CHUTE SECTION OF SPILLWAY, JUST D/S OF CREST - FUNCTION NOT KNOWN.f. Water Passages, Conduits, Sluices STONE MASONRY AROUND OUTLET PIPE GOOD. CONCRETE CAP OVER STONE MASONRY STEP AT D/S END IS ERODED AT END OF PIPE DUE TO FLOWING WATERGEI g. Seepage or Leakage None observed

- h. Joints - Construction, etc. POUR BOND BETWEEN CONCRETE FACE & STONE MASONRY - LARGE SECTIONS OF CONCRETE MISSING
- GEI i. Foundation Sand, gravel, and boulders cover bottom of downstream channel next to spillway
- GEI j. Abutments Embankment section between spillway and abutments
- k. Control Gates NONE OBSERVED.
- l. Approach & Outlet Channels RESERVOIR U/S OF SPILLWAY. IT SLOPES UPWARD TO SPILLWAY CREST (CONCRETE PAVING VISIBLE U/S). D/S CHANNEL IS WIDE AS END OF CHUTE D/S. SPILLWAY DROPS OFF ABOUT 10' FROM END OF CHUTE INTO CHANNEL. AT RIGHT SIDE BELOW CHUTE HOWEVER, THERE IS STEPPED SECTION S/BOTTOM END OF CHUTE TO CHANNEL. APPROACH TO OUTLET PIPES IS RESERVOIR AREA TO IN FRONT OF CONC. FOUNDATION OF GATE HOUSE. 72" PIPE DISCHARGES ONTO STEPPED SECTION & THEN DROPS OFF INTO D/S CHANNEL
- m. Energy Dissipators (Plunge Pool, etc.) SOME PILED ROCK AT D/S TOE OF DAM.
- n. Intake Structures NOT OBSERVABLE.
- o. Stability
- p. Miscellaneous

8876

Name of Dam West Millpond Dam Date June 3, 1981 9

10. APPURTENANT STRUCTURES (Power House, Lock, Gatehouse, Service Bridge, Other)

a. Description: \_\_\_\_\_

GATE HOUSE - WOOD FRAME STRUCTURE OFFSET U/S  
OVER CONCRETE FOUNDATION. CONTROL  
STEMS FOR GATE ON 27" PIPE & VALVE ON 19" PIPE  
ARE THROUGH GATE HOUSE FLOOR & U/S OF  
ITS CONCRETE FOUNDATION.

b. Condition: \_\_\_\_\_

GATE HOUSE - ALUMINUM ROOF PARTIALLY MISSING. BLDG.  
IS KEPT LOCKED. FOUNDATION CONCRETE HAS  
MINOR EFFLORESCENCE & SHOWS MINOR EROSION  
AT WATERLINE.

11. MISCELLANEOUS MECHANICAL/ELECTRICAL EQUIPMENT

a. Description: LIGHT ; HEATER , 2 PUMPS , & CHEMICAL

FEED TANK FOR USE IN CHEMICALLY CONDITIONING WATER  
TO PLANT W/ POLY PHOSPHATES .

b. Condition: OPERABLE.

12. OTHER

## APPENDIX C

## HYDROLOGIC AND HYDRAULIC ENGINEERING DATA

## CHECKLIST AND COMPUTATIONS

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Drainage Area Data For HEC-1 DB Model	C-7
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Computer Input	C-9
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Inflow and Outflow Hydrograph Plots	C-15

PHASE I INSPECTION  
HYDROLOGIC AND HYDRAULIC  
ENGINEERING DATA CHECKLIST

Name of Dam WEST MILLPOND DAM Fed. Id.# NY01060

1. AREA-CAPACITY DATA

	<u>Elevation</u> (ft.)	<u>Surface Area</u> (acres)	<u>Storage Capacity</u> (acre-ft.)
a. Top of Dam (LOW POINT)	<u>837.6</u>	<u>54.7 EST.</u>	<u>256</u>
b. Design High Water (Max. Design Pool)	<u>UNKNOWN</u>		
c. Auxiliary Spillway Crest	<u>N/A</u>		
d. Pool Level with Flashboards	<u>N/A</u>		
e. <del>Service</del> Spillway Crest	<u>835</u>	<u>26.3</u>	<u>123</u>

2. DISCHARGES

	<u>Volume</u> (cfs)
a. Average Daily (OUTLET PIPE LEAKAGE + PROCESS WATER)	<u>~1</u>
b. Spillway @ Top of Dam	<u>730</u>
c. Spillway @ Design High Water	<u>UNKNOWN</u>
d. Service Spillway @ Auxiliary Spillway Crest Elevation	<u>N/A</u>
e. Low Level Outlet (NORMALLY CLOSED-W/ W.S. @ SPILLWAY) (OUTLET PIPE) (CREST ESTIMATED Q = 54 cfs)	<u>0</u>
f. Total (of all facilities) @ Top of Dam*	<u>730</u>
g. Maximum Known Flood	<u>690±</u>
h. At Time of Inspection JUNE 3, 1981, W.S. 1"± BELOW SPILLWAY FLOW DUE LEAKAGE OF OUTLET PIPE GATE	<u>1 EST.</u>

\* EXCLUDES WATER SUPPLY MAIN, CAPACITY UNKNOWN +  
OUTLET PIPE, NORMALLY CLOSED.

3. TOP OF DAMElevation 837.6 (LOW POINT)

- a. Type EARTH
- b. Width 10' TO 20' Length 190' (INCLUDING SPILLWAY)
- c. Spillover CHUTE SPILLWAY
- d. Location CENTER OF DAM

4. SPILLWAY

## SERVICE

## AUXILIARY

- a. 835 Elevation N/A
- b. CHUTE Type
- c. 56.5' Width
- d. ✓ Type of Control  
Uncontrolled
- e.  Controlled:  
Type   
(Flashboards; gate)
- f.  Number
- g.  Size/Length
- h. CONCRETE Invert Material
- i.  Anticipated Length  
of Operating Service
- j. 23' Chute Length
- k. 0 Height Between Spillway Crest  
SLOPES UP TO WEIR & Approach Channel Invert  
(Weir Flow)
- l. N/A Other

5. OUTLET STRUCTURES/EMERGENCY DRAWDOWN FACILITIES \*a. Type: Gate \_\_\_\_\_ Sluice \_\_\_\_\_ Conduit ✓ Penstock \_\_\_\_\_b. Shape CAST IRON PIPE W/ GATE ON U/ENDc. Size 27" DIAMETER, 30' ± LONGd. Elevations: Entrance Invert 826 EST.Exit Invert 825.6 ± (FIELD MEASUREMENT)e. Tailrace Channel: Elevation 814 ± (PER FIELD MEASUREMENT  
D/S CHANNEL AT TOE OF DAM)

\* ALSO 18" WATER SUPPLY MAIN, VALVED AT DAM &amp; D/S FROM DAM AT OWNERS PLANT.

6. FLOOD WATER CONTROL SYSTEMa. Warning System NONE.b. Method of Controlled Releases (mechanisms) 18" VALVE ON WATER  
SUPPLY MAIN + GATE ON OUTLET PIPE CAN BE OPERATED7. CLIMATOLOGICAL GAGES REFERENCES 21+22a. Type NON-RECORDING  
PRECIPITATION + TEMPERATURE GAGE INDEX # 3319b. Location GLOVERSVILLE LAT. 43° 03' , LONG. 74° 20' ~ 2 MILES FROM DAMc. Period of Record 1891 TO PRESENTd. Maximum Reading UNKNOWN Date \_\_\_\_\_8. STREAM GAGES REFERENCE 23a. Type WATER - STAGE RECORDER USGS GAGE # 01348000b. Location EAST CANADA CREEK AT EAST CREEK, NEW YORKLAT. 43° 01' 00" , LONG. 74° 44' 28" ~ 20 MILES WEST OF DAMc. Period of Record 1945 TO PRESENTd. Maximum Reading 13,300 cfs = 45.7 cfs Date MARCH 14, 19779. OTHER



10. DRAINAGE BASIN CHARACTERISTICS

- a. Drainage Area 4.9 SQUARE MILES (3136 ACRES)
- b. Land Use - Type FOREST & SOME RESIDENTIAL
- c. Terrain - Relief SLOPES OF 5% TO 15% , SWAMPY NEAR POND
- d. Surface - Soil GLACIAL TILL
- e. Runoff Potential (existing or planned extensive alterations to existing surface or subsurface conditions)

NONE KNOWN.

- f. Potential Sedimentation Problem Areas (natural or man-made; present or future)

POND IS FILLING UP W/ SEDIMENT, U/S END VERY

SHALLOW DUE TO SEDIMENTATION.

- g. Potential Backwater Problem Areas for Levels at Maximum Storage Capacity (including surcharge storage)

NONE KNOWN.

- h. Dikes - Floodwalls (overflow & non-overflow) - Low Reaches Along the Reservoir perimeter

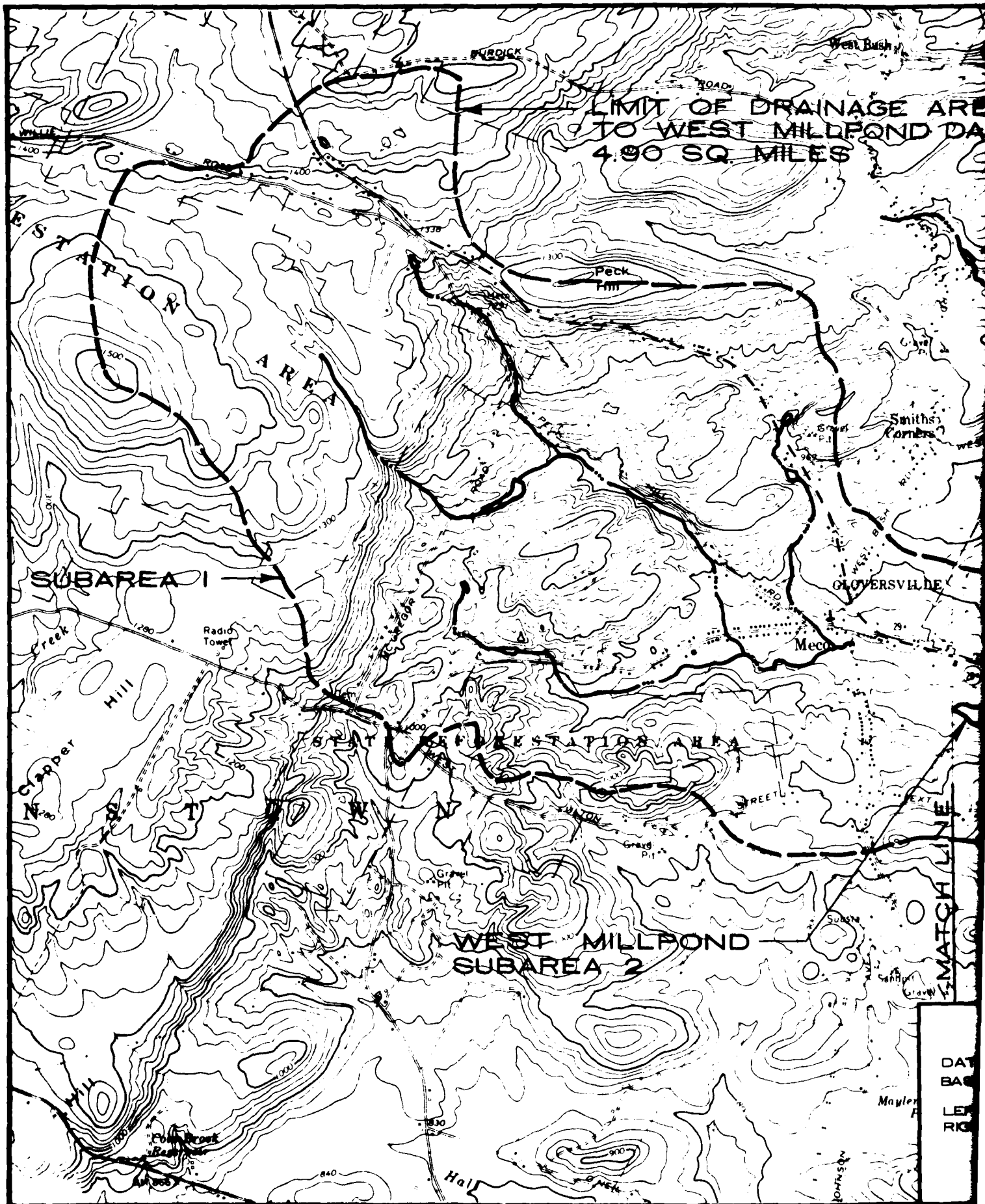
Location ALONG LEFT SIDE RESERVOIR. 200' EARTH + CONCRETE  
DIKE MEETS DAM

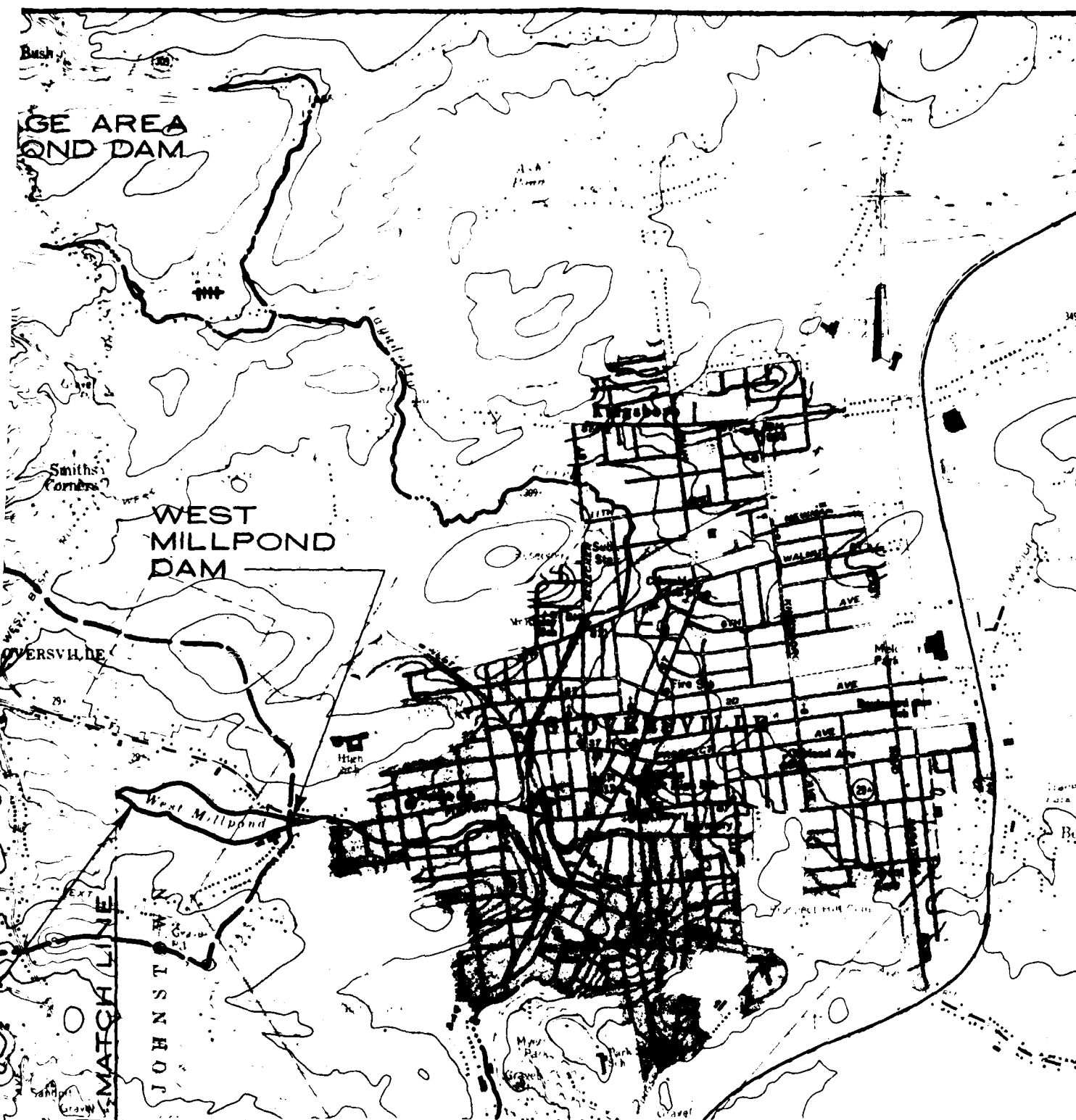
Elevation ABOUT EL 838 OR HIGHER

- i. Reservoir

Length @ <sup>SPILLWAY CREST</sup> ~~Maximum~~ Design Pool 2400± (feet)

Length of Shoreline (@ Service Spillway Crest) 3400± (feet)





APPROXIMATE SCALE IN FEET  
0 2000 4000

DATUM - NGVD 1929

BASE MAP - 75' USGS TOPO QUADS  
20' CONTOUR INTERVAL

LEFT SIDE - PECK LAKE, NY - 1970

RIGHT SIDE - GLOVERSVILLE, NY - 1970

## WEST MILLPOND DAM DRAINAGE AREA MAP

CITY OF GLOVERSVILLE

FULTON CO., NY

SCALE: 1" = 2000'

DATE: JANUARY 1981



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COMPUTER SERVICES LANDSCAPE ARCHITECTURE LABORATORY SERVICES

JOB WEST MILLPOND DAM

SHEET NO. \_\_\_\_\_ OF \_\_\_\_\_

CALCULATED BY ELV DATE 6/16/81

CHECKED BY 9712 DATE 8/13/81

SCALE 80.00854

ELEVATION - AREA - STORAGE COMPUTATIONS

RESERVOIR VOLUME: COMPUTED BY HAND USING THE  
METHOD OF CONIC SECTIONS  $\Delta V_2 = \frac{H}{3}(A_1 + A_2 + \sqrt{A_1 A_2})$

	ELEVATION (NGVD)	AREA (4) (acres)	INPUT STORAGE (acre-feet)
	825 (1)	—	0
SPILLWAY CREST	835 (2)	26.3	123 (5)
TOP OF DAM	837.6 (3)	54.7 EST.	256 FROM COMPUTER OUTPUT
	840	81.0	379
	860	194.1	3049

- (1) ESTIMATED POND BOTTOM USING DEPTH INFORMATION FROM MAP OF POND DATED JUNE 1931 (APPENDIX G-1) & 1955 SKETCH BY NYS-DEL (APPENDIX F3-19)
- (2) FROM "CHARACTERISTICS OF NEW YORK LAKES (GAZETTEER)" (REF. 25)
- (3) FROM FIELD MEASUREMENTS. TOP OF DAM IS LOW POINT JUST TO RIGHT OF GATE HOUSE.
- (4) FROM USGS CONTOUR MAPPING (APPENDIX C-5)
- (5) FROM APPENDIX F3-26 STORAGE CAPACITY = 40 MG  $\approx$  123 ACRE-Feet

<u>DRAINAGE AREA</u>	(acres)	AREA (square miles)
WATERSHED DIRECT TO RESERVOIR (SUBAREA 1)	3109.6	4.859
RESERVOIR SURFACE (SUBAREA 2) @ SPILLWAY CREST EL = 835	26.3	.041
<b>TOTAL</b>	<b>3135.9</b>	<b>4.900</b>

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COMPUTER SERVICES

LANDSCAPE ARCHITECTURE

LABORATORY SERVICES

WEST MILLPOND DAM

JOB

SHEET NO.

OF

CALCULATED BY

CLV

DATE

6/16/81

CHECKED BY

QMB

DATE

8/13/81

SCALE

80.854

## DRAINAGE AREA DATA FOR HEC-1 DB MODEL

SUBAREA 1: AREA TRIBUTARY DIRECTLY TO RESERVOIR

AREA = 4.859 SQUARE MILES.

LOSS RATES: 1.0" - INITIALLY

0.1"/HOUR - CONSTANT LOSS RATE

UNIT HYDROGRAPH PARAMETERS: USE SNYDER METHOD

A = DRAINAGE AREA = 4.859 SQUARE MILES

L = LENGTH OF MAIN WATERCOURSE TO UPSTREAM LIMIT OF DRAINAGE AREA = 3.84 MILES

$L_{ca}$  = LENGTH ALONG MAIN WATERCOURSE TO POINT OPPOSITE THE CENTROID OF THE DRAINAGE AREA = 1.56 MILES

$C$  = SNYDER'S BASIN COEFFICIENT = 2.0 ASSUMED AVERAGE

$C_p$  = SNYDER'S PEAKING COEFFICIENT = .70 (FROM REF. 20)

$t_p$  = STANDARD LAG IN HOURS =  $C_p (L L_{ca})^{0.3} = 3.42$  HOURS

∴ USE  $t_p = 3.4$  HOURS

REQ'D UNIT RAINFALL DURATION =  $t_p$

$t_p = \frac{t_p}{5.5} = \frac{3.4}{5.5} = 0.62 \text{ HR} \approx 37 \text{ MINUTES}$

USE  $t_p' = 10 \text{ MINUTES} < 37 \text{ MINUTES MAX OK}$

SUBAREA 2: RESERVOIR SURFACE, AREA = .041 SQ. MILES = 26.3 ACRES

LOSS RATES: NONE BECAUSE RAINFALL  $\approx$  RUNOFF FOR WATER SURFACE

UNIT HYDROGRAPH PARAMETERS:

FOR U.H. W/ 10 MINUTE DURATION + 1" RAIN

$$\bar{Q} = \frac{A(1")}{t_p} = \frac{26.3 \text{ acres}(1")}{10 \text{ minutes}} \left( \frac{43,560 \text{ SQ FT}}{1 \text{ acre}} \right) \left( \frac{1 \text{ FT}}{12 \text{ inches}} \right) \left( \frac{1 \text{ minute}}{60 \text{ seconds}} \right)$$

$$\bar{Q} = 159 \text{ cfs (W/O LOSS RATE)}$$

# C. T. MALE ASSOCIATES, P. C.

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SURVEYORS

ARCHITECTS

LANDSCAPE ARCHITECTS

PLANNERS

3000 TROY ROAD, SCHENECTADY, N. Y. 12309

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JOB WEST MILLPOND DAM

SHEET NO

OF

CALCULATED BY

CLV

DATE

6/16/81

CHECKED BY

FM2

DATE

8/13/81

SCALE

80.00854

## DISCHARGE COMPUTATIONS

### DAM APPURTENANCE

ELEVATION (NGVD)

SIZE

SPILLWAY

CREST EL = 835

56.5' CREST LENGTH

DAM

CREST EL = 837.6  
(LOW POINT)

133.5' CREST LENGTH  
(EXCLUDES SPILLWAY)

LOW LEVEL OUTLET

OUTLET INV. EL = 825.6  
(FIELD MEASUREMENT)

27" CIP

WATER SUPPLY MAIN

UNKNOWN

18" CIP

FOR FLOW OVER SPILLWAY + DAM:

$$Q = 3.087 L H^{1.5}$$

INPUT

(FORMULA FOR CRITICAL FLOW OVER IDEAL BROAD-CRESTED WEIR, REFERENCE 9)

	ELEVATION (NGVD)	H <sub>SPILLWAY</sub> (ft)	H <sub>DAM</sub> (ft)	Q <sub>WATER MAIN</sub> (cfs)	Q <sub>OUTLET</sub> (cfs)	Q <sub>SPILLWAY</sub> (cfs)	Q <sub>DAM</sub> (cfs)	Q <sub>TOTAL</sub> (cfs)
SPILLWAY →	835	0	0	0	0	0	0	0
REST	836	1	0	ASSUMED CLOSED	ASSUMED CLOSED	174	0	174
	837	2	0			493	0	493
↑ OF DAM →	837.6	2.6	0			731	0	731 (SAY 730)
	838	3	.4			906	104	1010
	839	4	1.4			1395	683	2078
	840	5	2.4			1950	1532	3482



\*\*\*\*\*  
 FLOOD HYDROGRAPH PACKAGE (HEC-1)  
 DAP SAFETY VERSION JULY 1978  
 LAST MODIFICATION 26 FEB 79  
 \*\*\*\*\*

RUN DATE: 7/08/81  
 TIME: 1:03 PM

NYO DAM INSPECTION: DAG-51-81-C-0014  
 NYOLOO, WEST MILLPOND DAM, 80-00854  
 OVERTIPPING ANALYSIS WPMJ

JOB SPECIFICATION									
NU	NHR	NMIN	IDAY	IHR	IMIN	MESEC	IPLT	IPRT	NSTAN
208	0	10	0	0	0	0	0	4	0
SUPER 5 0 0 0 0 0 0 0 0									

MULTI-PLAN ANALYSES TO BE PERFORMED  
 NPLAN= 1 NRTIO= 2 LRTIO= 1

RTIOS= 1.00 0.50

\*\*\*\*\*

SUB-AREA RUNOFF COMPUTATION

SUBAREA 1 RUNOFF COMPUTATION									
ISTAD	ICOMP	IECON	ITAPE	JRTY	INARE	ISTAGE	IAUTO		
SA-1	0	0	0	0	0	0	0		

HYDROGRAPH DATA

THYDG	YUNG	YAREA	SNAP	THSDA	THSPC	WATIU	ISNOV	ISAME	LOCAL
1	1	4.66	0.00	10.00	0.00	0.000	0	1	0

PRECIP DATA

SPFE	P45	R42	R24	R48	R72	R96
0.00	19.00	111.00	123.00	132.00	142.00	0.00

\*\*\*\*\*  
 YASPC COMPUTED BY THE PROGRAM IS 0.800

LOSS DATA

LROPT	STRK2	ULYAK	RYOL	ERAIN	STKRS	RTIOK	STRTL	CNSTL	ALSMX	RTIRP
0	0.00	0.00	1.00	0.00	0.00	1.00	1.00	0.10	0.00	0.00

UNIT HYDROGRAPH DATA

TP= 3.40 CP=0.70 NTA= 0

RECESSION DATA

STRTO= -2.00 GRCSN= 0.00 RTIUR= 1.00

UNIT HYDROGRAPH 94 END-OF-PERIOD ORDINATES, LAG= 3.39 HOURS, CP= 0.69 VOL= 1.00

8.	29.	44.	46.	51.	510.	550.	584.	612.	634.	650.	664.	684.	702.	714.	724.	734.	744.	754.	764.	774.	784.	794.	804.	814.	824.	834.	844.	854.	864.	874.	884.	894.	904.	914.	924.	934.	944.	954.	964.	974.	984.	994.
8.	29.	44.	46.	51.	510.	550.	584.	612.	634.	650.	664.	684.	702.	714.	724.	734.	744.	754.	764.	774.	784.	794.	804.	814.	824.	834.	844.	854.	864.	874.	884.	894.	904.	914.	924.	934.	944.	954.	964.	974.	984.	994.



MO-DA HR-MN PERIOD RAIN EXCS LUSS  
 END-UP-PERIOD FLOW  
 MO-DA HR-MN PERIOD RAIN EXCS LUSS  
 SUM 21.28 17.94 3.05 312926.  
 ( 548.11 548.11 93.11 8861.07)

SUB-AREA RUNOFF COMPUTATION

SUBAREA 2 (RESERVOIR) RUNOFF COMPUTATION

ISTAU ICOMP IECUN ITAPE JPLT JPAT INAME ISTAGE IAUTU  
 SA-2 0 0 0 0 0 0 1 0 0

HYDROGRAPH DATA

IMYDG IUMG TAREA SNAP TRSUA TRSPC RATIO ISNUM ISAME LUCAL  
 1 -1 0.04 0.00 0.00 10.00 0.00 0.000 0 1 0

PRECIP DATA

SPEE PMS RB R12 K48 R72 R96  
 0.00 19.00 111.00 123.00 132.00 142.00 0.00 0.00

TRSPC COMPUTED BY THE PROGRAM IS 0.800

LOSS DATA

LROPT STRKR ULTKR RTIOL ERATN STRKS RTIOL STRTL CNSTL ALSRK RTIMP  
 0 0.00 0.00 1.00 0.00 0.00 1.00 0.00 0.00 0.00 0.00 0.00

RECESSION DATA

STRTO= -2.00 DULSN= 0.00 RTIOL= 1.00

END-UP-PERIOD FLOW

MO-DA HR-MN PERIOD RAIN EXCS LUSS  
 SUM 21.28 21.58 0.00 3433.  
 ( 548.11 548.11 0.11 97.21)

COMBINE HYDROGRAPHS

COMBINING HYDROGRAPHS 1 & 2

ISTAU ICOMP IECUN ITAPE JPLT JPAT INAME ISTAGE IAUTU  
 SA-2C 2 0 0 0 0 0 1 0 0

HYDROGRAPH ROUTING

ROUTING FLOWS THROUGH RESERVOIR

ISTAU ICOMP IECUN ITAPE JPLT JPAT INAME ISTAGE IAUTU  
 RES 1 0 0 0 2 0 1 0 0

ROUTING DATA

QLOSS GLUSS AVG INES ISAME IUPI IPMP LSTK  
 0.0 0.000 0.00 0.00 1 1 0 0 0

INSTPS NSTOL LAG ARSKK X TSK STOKA ISPRAT  
 1 0 0 0.000 0.000 0.000 -835. 0

CAPACITY= 0. 123. 374. 3049.

ELEVATION		835.		840.		800.	
CREL	SPWID	COQM	EXPW	ELEVL	CUJL	CAREA	EXPL
835.0	50.5	3.1	1.5	0.0	0.0	0.0	0.0
DAM DATA							
TOPEL		COOQ	EXPW	CUJL	CUJL	CUJL	CUJL
837.6		3.1	1.5	0.0	0.0	0.0	0.0
PEAK OUTFLOW IS 7857. AT TIME 43.50 HOURS							

PEAK FLOW AND STORAGE (END OF PERIOD) SUMMARY FOR MULTIPLE PLAN-RATIO ECONOMIC COMPUTATIONS  
 FLOWS IN CUBIC FEET PER SECOND (CUBIC METERS PER SECOND)  
 AREA IN SQUARE MILES (SQUARE KILOMETERS)

RATIOS APPLIED TO FLOWS

OPERATION	STATION	AREA	PLAN	RATIO	1	RATIO	2
				1.00		0.50	
HYDROGRAPH AT	SA-1	4.86 ( 12.58)	1	8117.		4159.	
			( 235.52)	( 117.76)			
HYDROGRAPH AT	SA-2	0.04 ( 0.11)	1	429.		229.	
			( 12.99)	( 6.50)			
2 COMBINED	SA-2C	4.90 ( 12.69)	1	8321.		4161.	
			( 235.63)	( 117.81)			
ROUTED TO	MES	4.90 ( 12.69)	1	7857.		3946.	
			( 222.50)	( 111.73)			

SUMMARY OF DAM SAFETY ANALYSIS

PLAN 1 .....

ELEVATION	INITIAL VALUE	SPILLWAY CREST	TOP OF DAM
STORAGE	835.00	835.00	837.60
OUTFLOW	123.	123.	256.
	0.	0.	731.

RATIO OF PMF	MAXIMUM RESERVOIR W.S. ELEV	MAXIMUM DEPTH OVER DAM	MAXIMUM STORAGE AC-FT	MAXIMUM OUTFLOW CFS	DURATION		TIME OF	
					OVER TOP HOURS	MAX OUTFLOW HOURS	FAILURE HOURS	FAILURE HOURS
1.00	842.41	4.81	700.	2857.	10.00	43.50	0.00	0.00
0.50	840.29	2.69	418.	3946.	8.97	43.50	0.00	0.00

[illegible]

## STATION RES

INFLU(1), OUTFLOW(1) AND OBSERVED FLOW(1)

	500.	1000.	1500.	2000.	2500.	3000.	3500.	4000.	4500.	0.
19.00228.	0.	1								0.
19.10229.	0.	1								0.
19.20230.	0.	1								0.
19.30231.	0.	1								0.
19.40232.	0.	1								0.
19.50233.	0.	1								0.
19.60234.	0.	1								0.
19.70235.	0.	1								0.
19.80236.	0.	1								0.
19.90237.	0.	1								0.
20.00238.	0.	1								0.
20.10239.	0.	1								0.
20.20240.	0.	1								0.
20.30241.	0.	1								0.
20.40242.	0.	1								0.
20.50243.	0.	1								0.
20.60244.	0.	1								0.
20.70245.	0.	1								0.
20.80246.	0.	1								0.
20.90247.	0.	1								0.
21.00248.	0.	1								0.
21.10249.	0.	1								0.
21.20250.	0.	1								0.
21.30251.	0.	1								0.
21.40252.	0.	1								0.
21.50253.	0.	1								0.
21.60254.	0.	1								0.
21.70255.	0.	1								0.
21.80256.	0.	1								0.
21.90257.	0.	1								0.
22.00258.	0.	1								0.
22.10259.	0.	1								0.
22.20260.	0.	1								0.
22.30261.	0.	1								0.
22.40262.	0.	1								0.
22.50263.	0.	1								0.
22.60264.	0.	1								0.
22.70265.	0.	1								0.
22.80266.	0.	1								0.
22.90267.	0.	1								0.
23.00268.	0.	1								0.
23.10269.	0.	1								0.
23.20270.	0.	1								0.
23.30271.	0.	1								0.
23.40272.	0.	1								0.
23.50273.	0.	1								0.
23.60274.	0.	1								0.
23.70275.	0.	1								0.
23.80276.	0.	1								0.
23.90277.	0.	1								0.
24.00278.	0.	1								0.
24.10279.	0.	1								0.
24.20280.	0.	1								0.
24.30281.	0.	1								0.
24.40282.	0.	1								0.
24.50283.	0.	1								0.
24.60284.	0.	1								0.
24.70285.	0.	1								0.
24.80286.	0.	1								0.
24.90287.	0.	1								0.

1/2 PMF

APPENDIX D

STABILITY ANALYSIS

NO GRAVITY STRUCTURES TO ANALYZE

APPENDIX E  
REFERENCES



WEST MILLPOND DAM, NY 01060

PHASE I INSPECTION REPORT

REFERENCES

This is a general list of references pertinent to dam safety investigations. Not all references listed have necessarily been used in this specific report.

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4. HMR 33, "Seasonal Variations of Probable Maximum Precipitation, East of the 105th Meridian for Areas 10 to 1000 Square Miles and Durations from 6 to 48 Hours," U.S. Dept. of Commerce, NOAA, National Weather Service, 1956.
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7. "Technical Paper No. 40, Rainfall Frequency Atlas of the United States", U.S. Dept. of Commerce, Weather Bureau, 1961.
8. Design of Small Dams, United States Dept. of the Interior, Bureau of Reclamation, Second Edition, 1973, Revised Reprint, 1977.
9. King, Horace W. and Brater, Ernest F., Handbook of Hydraulics, fifth edition, McGraw-Hill Book Co., Inc., New York, N. Y., 1963.
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12. National Engineering Handbook, Section 4, Hydrology, U. S. Dept. of Agriculture, Soil Conservation Service, August 1972.
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15. "Hydrologic and Hydraulic Assessment", Appendix D of EC 1110-2-188, U.S. Army Corps of Engineers, 30 December 1977.
16. "Reviews of Spillway Adequacy, National Program of Inspection of Non-Federal Dams", ETL 1110-2-234, U.S. Army Corps of Engineers, 10 May 1978.
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19. "Guide for Making a Condition Survey of Concrete in Service", American Concrete Institute (ACI) Journal, Proceedings Vol. 65, No. 11, November 1968, pages 905-918.
20. "Upper Hudson & Mohawk River Basins, Hydrologic Flood Routing Models", New York District, Corps of Engineers, October 1976.
21. "Climatological Data, Annual Summary, New York, 1979", Volume 91, No. 13, National Oceanic and Atmospheric Administration, Asheville, North Carolina.
22. "Climatological Data, New York, September 1980", Volume 92, No. 9, National Oceanic and Atmospheric Administration, Asheville, North Carolina.
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24. "Maximum Known Stages and Discharges of New York Streams Through 1973", Bulletin 72, U.S. Geological Survey, 1976.
25. "Characteristics of New York Lakes (Gazetteer)", Bulletin 68, U.S. Geological Survey and NYS Department of Environmental Conservation, 1970.

26. "Geologic Map of New York", Hudson-Mohawk Sheet, New York State Museum and Science Service, University of the State of N.Y., State Education Dept., Albany, N.Y., reprinted 1973.
27. "Landforms and Bedrock Geology of New York State", New York State Museum and Science Service, University of the State of N.Y., State Education Dept., Albany, N.Y., reprinted 1973.
28. Brigham, A.P., "Glacial Geology and Geographic Conditions of the Lower Mohawk Valley: A Survey of Amsterdam, Fonda, Gloversville, and Broadalbin Quadrangles", Bulletin of the New York State Geological Survey, 1929.

APPENDIX F  
AVAILABLE ENGINEERING DATA AND RECORDS  
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Checklist for General Engineering Data and Interview with Dam Owner	F2
Copies of Engineering Data and Records	F3

## APPENDIX F

## SECTION F1

LOCATION OF AVAILABLE ENGINEERING DATA AND RECORDS

1. Owner: Rovel Aqua, Inc.  
P.O. Box 753  
111 Woodside Avenue  
Gloversville, NY 12078  
  
Attn: Chris Chiappa, Chief Engineer  
(518) 725-8691  
  
Available: Correspondence, general data, and  
map of pond.
2. Designer: Unknown.
3. Construction Contractor: Unknown.
4. Agency: NYS Department of Environmental Conservation  
50 Wolf Road  
Albany, NY 12233  
Attn: George Koch, P.E., Chief, Dam Safety Section  
(518) 457-5557  
  
Available: Inspection reports, photo, letters.  
  
NYS Department of Environmental Conservation  
Division of Fish & Wildlife  
50 Wolf Road  
Albany, NY 12233  
Attn: Patrick Festa, Supervising Aquatic Biologist  
(518) 457-6937  
  
Available: Data on the pond.

## PHASE I INSPECTION

CHECKLIST FOR GENERAL ENGINEERING DATA  
& INTERVIEW WITH DAM OWNERName of Dam WEST MILLPOND DAM Fed. Id.# NY 01060Date 6/3/81 Interviewer(s) TDM DENNEDUM

Dam Owner/Representative(s) Interviewed, Title &amp; Phone# \_\_\_\_\_

RICHARD McMILLAN SR., FOREMAN (518) 725-8691CHRIS CHIAPPA, CHIEF ENGR. ROVEL AQUA INC. (518) 725-8691

1. OWNERSHIP (name, title, address & phone #) \_\_\_\_\_  
ROVEL AQUA, INC., P.O. BOX 753, 111 WOODSIDE AVE., GLOVERSVILLE,  
NY 12078 ATTN: CHRIS CHIAPPA, CHIEF ENGR. (518) 725-8691  
(ROVEL AQUA, INC IS A SUBSIDIARY OF LEE DYEING CO. OF N. CAROLINA)
2. OPERATOR (name, title, address & phone # of person responsible for day-to-day operation) \_\_\_\_\_  
RICHARD McMILLAN SR., FORMAN W/ LEE DYEING CO. OF N. CAROLINA,  
111 WOODSIDE AVE, GLOVERSVILLE, NY 12078 (518) 725-8691  
a. Operator Full/Part time PART TIME
3. PURPOSE OF DAM  
a. Past PROCESS WATER FOR DYEING OPERATION - STOPPED  
DUE TO ALGAE PROBLEM IN POND  
b. Present WATER STORAGE FOR USE W/ AIR POLLUTION  
EQUIPMENT (SCRUBBER) & AIR CONDITIONING EQUIPMENT @  
111 WOODSIDE AVE., 3500± D/S
4. DESIGN DATA  
a. Designed When 1870±  
b. By (name, address, phone #, business status) \_\_\_\_\_  
UNKNOWN FOR DANIEL HAYS COMPANY  
c. Geology Reports NONE KNOWN.  
d. Subsurface Investigations NONE KNOWN.  
e. Design Reports/Computations (H&H, stability, seepage)  
NONE KNOWN.

- f. Design Drawings (plans, sections, details) NONE KNOWN.
- g. Design Specifications NONE KNOWN.
- h. Other DRAWING OF POND (SEE APPENDIX G-1)  
+ SKETCH OF POND (SEE APPENDIX F3-19)

5. CONSTRUCTION HISTORY

- a. Initial Construction
- 1) Completed When 1870±
  - 2) By (name, address, phone #, business status) UNKNOWN FOR DANIEL HAYS CO. (TANNERY)
  - 3) Borrow Sources/Material Tests NONE KNOWN.
  - 4) Construction Reports/Photos NONE KNOWN.
  - 5) Diversion Scheme/Construction Sequence NONE KNOWN.
  - 6) Construction Problems NONE KNOWN.
  - 7) As-Built Drawings (plans, sections, details) NONE KNOWN.
  - 8) Data on Electrical & Mechanical Equipment Affecting Safe Operation of Dam NONE KNOWN.
  - 9) Other N/A

- b. Modifications (review design data & initial construction items as applicable & describe) \_\_\_\_\_

• 1912-1913 - CONCRETE FACING WORK TO STONE MASONRY OF DAM  
 • 1918-1919 - SPILLWAY WIDENED  
 • 1940's - SPILLWAY SECTION PAVED + 18" CAST IRON SUPPLY MAIN  
 WAS INSTALLED INSIDE OLD 5' SLUICE FROM DAM

- c. Repairs & Maintenance (review design data & initial construction items as applicable & describe) \_\_\_\_\_

• 1973 - FREED GATE ON 27" OUTLET PIPE. ALSO DID  
 CONCRETE PATCHING TO SPILLWAY TRAINING WALLS  
 + WALL TO LEFT OF SPILLWAY. DONE BY A  
 LOCAL MASON, THOMAS RANDALL, NO LONGER  
 IN BUSINESS

6. OPERATION RECORD • SPRING 1980 DRAINED POND FOR ALGAE CONTROL + REFILLED. NO SILT NOTED AGAINST SPILLWAY.

- a. Past Inspections (dates, by, authority, results)  
 4 BY NYS CONSERVATION COMMISSION BETWEEN SEPT. 1913 + MAY, 1919  
 (SEE APPENDICES F3-1 TO F3-18 + PHOTO ON F3-19)  
 SEPT 18, 1970 BY NYS-DEL (SEE APPENDIX F3-20)  
 JULY 17, 1977 BY C.R. ACKERBAUER, P.E. FOR OWNER (SEE LETTER, APPENDIX F3-23)  
 SEE 9 OTHER
- b. Performance Observations (seepage, erosion, settlement, post-construction surveys, instrumentation & monitoring records) NONE KNOWN. OWNER NOTES LAKE SHALLOWER  
 NOW THAN IN PAST + THAT THERE IS ALWAYS OPEN WATER  
 BETWEEN ICE + SPILLWAY
- c. Post-Construction Engineering Studies/Reports  
 NONE KNOWN.
- d. Routine Rainfall, Reservoir Levels & Discharges  
 NONE KNOWN.



- e. Past Floods That Threatened Safety (when, cause, discharge, max. pool elevation, any damage) \_\_\_\_\_  
APRIL 1975 HIGHEST WATER LEVEL, 1 1/2" BELOW CONCRETE  
WALL TO RIGHT OF GATE HOUSE MEASURED BY RICHARD MCMILLAN
- f. Previous Failures (when, cause, describe) \_\_\_\_\_  
NONE.
- g. Earthquake History (seismic activity in vicinity of dam)  
NONE KNOWN.

7. VALIDITY OF DESIGN, CONSTRUCTION & OPERATION RECORDS (note any apparent inconsistencies) \_\_\_\_\_

LIMITED DATA APPEARS VALID

8. OPERATION & MAINTENANCE PROCEDURES

- a. Operation Procedures in writing? NO Obtain copy or describe. (reservoir regulation plan, normal pool elevation and status of operating facilities, who operates & means of communication to controller, mode of operating facilities, i.e., manual, automatic, remote)
- NO FLASHBOARDS, OUTLET GATE NORMALLY CLOSED AS MUCH AS POSSIBLE - WATER LEVEL NORMALLY AT SPILLWAY CREST
  - EXERCISE GATE ONCE/YEAR, LAST OPENED SPRING 1981
  - 18" VALVE NORMALLY FULL OPEN TO PLANT, BUT 8" VALVE ON DB END ONLY 1/4 OPEN, BYPASSING SOME FLOW OFF TO CREEK.
  - WATER FOR PLANT DRAWN OFF BY 2" PIPE (DRAFT UNKNOWN)
  - GATE ON OUTLET PIPE ESTIMATED TO LEAK AT 500 GPM
- b. Maintenance Procedures in writing? NO Obtain copy or describe.
- CUT BRUSH YEARLY (SINCE 1972)
  - EXERCISE GATE + VALVE YEARLY
  - OPERATOR VISITS DAM SEVERAL TIMES EACH WEEK

- c. Emergency Action Plan & Warning System in Writing? No  
Obtain copy or describe. (actions to be taken to  
minimize the D/S effects of an emergency) \_\_\_\_\_

• ONLY CONCERNED IN 1975 BUT NO ONE CONTACTED

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

9. OTHER

6.a.

JULY 18, 1979 LETTER BY NYS-DEC CONCERNING INSPECTION (SEE APPENDIX F3-24)  
MAY 6, 1980 BY NYS-DEC (SEE APPENDIX F3-25)

## APPENDIX F

## SECTION F3

## COPIES OF ENGINEERING DATA AND RECORDS

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Inspection Report, by NYS Conservation Commission (by G.H. Marten) - September 10, 1918.	F3-10
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DANIEL HAYS, President

Established 1854  
Incorporated 1904

LEWIS A. TATE, Vice-President and Treasurer

CONSERVATION COMMISSION

THE DANIEL HAYS COMPANY

MANUFACTURERS OF

SEP 16 1913  
PLYMOUTH BUCK GLOVES AND MITTENS  
DIVISION INLAND WATERS

Chief Engineer, MOCHAS

To Inspector of Glaciers & Rivers  
RMS

COMR MOORE

SEP 16 1913

RECEIVED

Gloversville, N.Y., Sept. 9, 1913. 191

RECEIVED

The Conservation Commission,

Albany, N. Y.

SEP 16 1913

DIVISION INLAND WATERS

J. D. M.

Gentlemen:

We are in receipt of a personal letter addressed to  
Mr. Daniel Hays, who died June 25th last, and we herewith  
reply.

We beg to advise that we have made no alterations on what  
we call our West Mill Dam. We simply faced a part of the  
North wall of the Pond and the front of the Dam with Concrete so  
as to stop leaking, but we did take a foot off the top of the Dam.

We did not know about applications or anything regarding that  
matter. We did our repairing and it was finished last week.

We do not own another Dam in Gloversville. There used to be  
a little old Dam just this side of our West Mill Dam, but we are  
not using this any longer.

We believe this answers your letter in full, but at the same  
time, if there is something else for us to do in the matter,  
kindly let us know, or when some of your people come up this way,  
we would be real glad to have the pleasure of seeing them and  
giving them all the information that is in our power.

Awaiting your early reply, we are,

Yours very truly,

The Daniel Hays Company,

*Lewis A. Tate* Treas.

DEC

F3-1

SEP 16 1913

(NOTICE: After filling out one of these forms as completely as possible for each dam in your district, return it at once to the Conservation Commission, Albany.)

STATE OF NEW YORK  
CONSERVATION COMMISSION  
ALBANY

DAM REPORT

August, 1917  
(Date)

CONSERVATION COMMISSION,

DIVISION OF WATERS.

GENTLEMEN:

I have the honor to make the following report in relation to the structure known as the West Mill 172-392 mch Dam.

This dam is situated upon the Cayadutta Creek  
(Give name of stream)  
in the Town of Johnstown, Fulton County,  
about 1/2 from the Village or City of Glensville  
(State distance)  
The distance down stream from the dam, to the Glensville  
(Up or down) (Give name of nearest important stream or of a bridge)  
is about 1/2 mile  
(State distance)

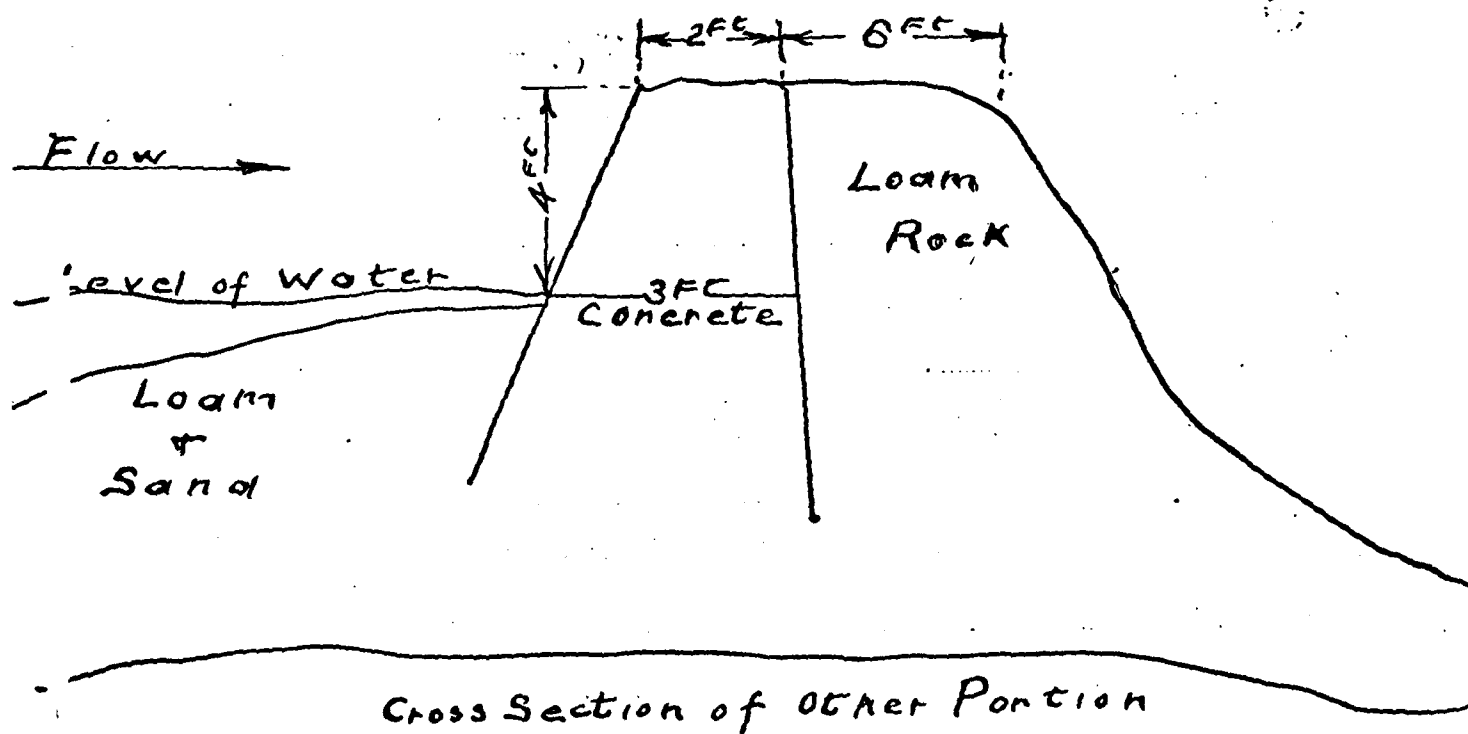
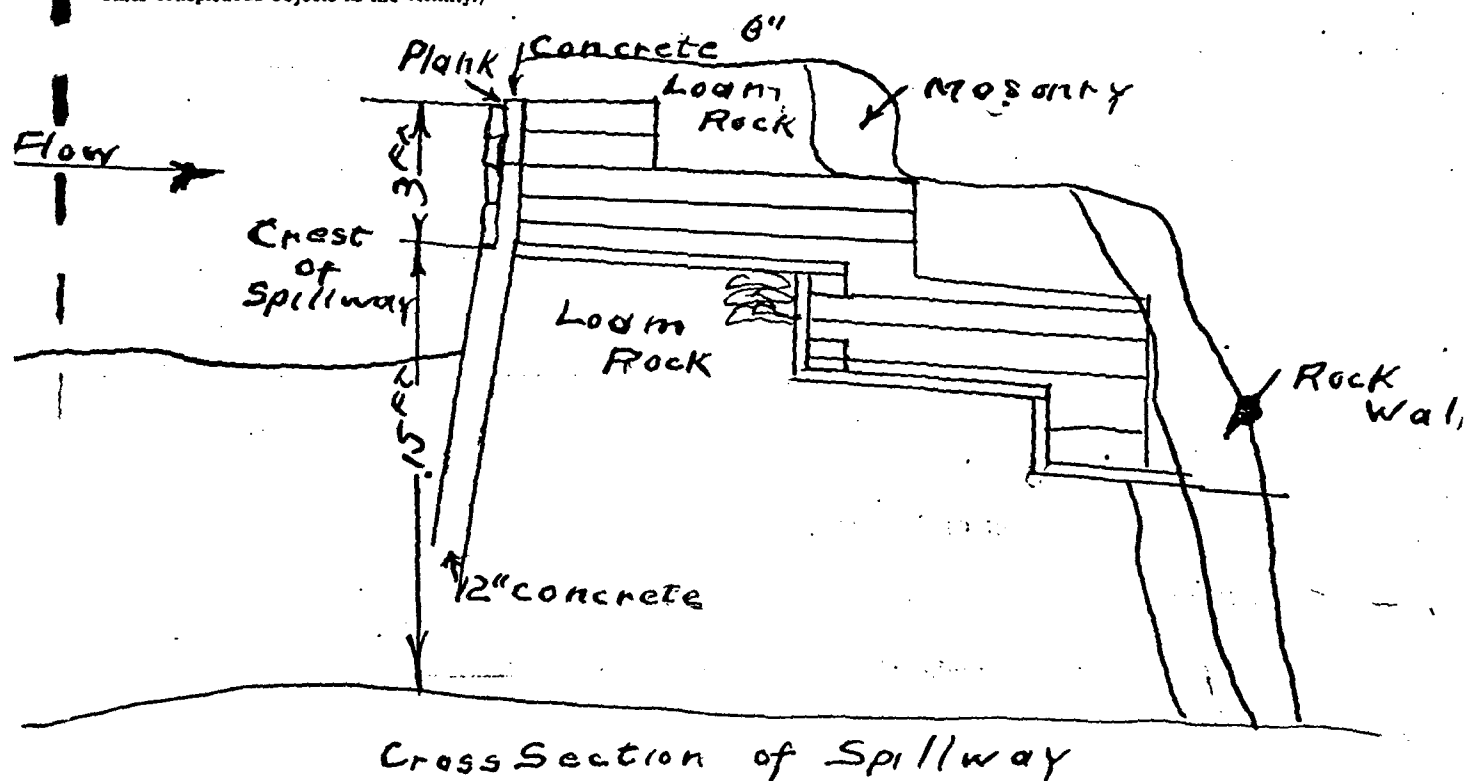
The dam is now owned by Daniel Hayes Co. Glensville  
(Give name and address in full)  
and was built in or about the year 1870, and was extensively repaired or reconstructed during the year 1912.

As it now stands, the spillway portion of this dam is built of timber & concrete  
(State whether of masonry, concrete or timber)  
and the other portions are built of concrete & earth with rock fill  
(State whether of masonry, concrete, earth or timber with or without rock fill)

As nearly as I can learn, the character of the foundation bed under the spillway portion of the dam is gravel and under the remaining portions such foundation bed is loam.

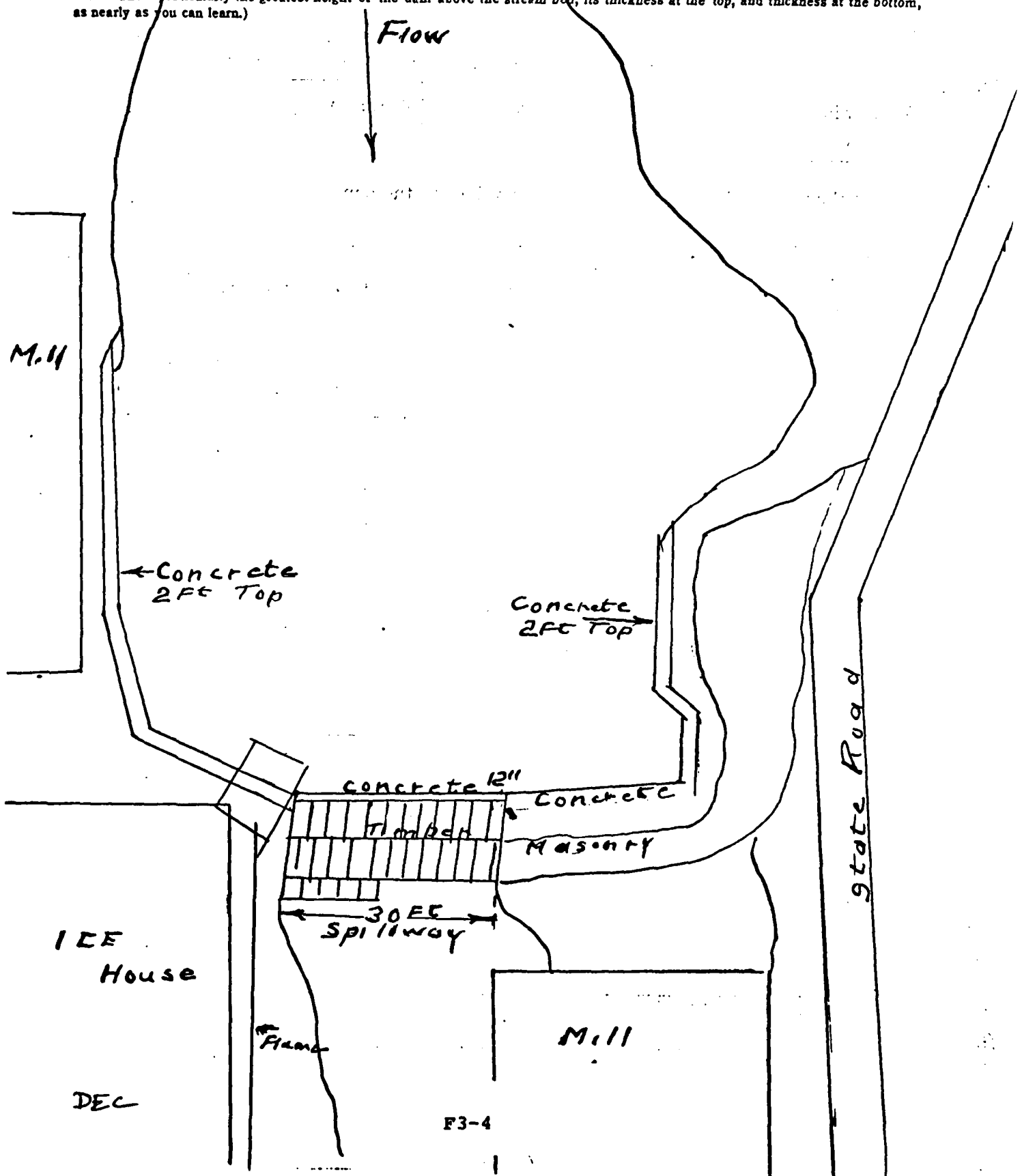
DEC

(In the space below, make a third sketch showing the general plan of the dam, and its approximate position in relation to buildings or other conspicuous objects in the vicinity.)



DEC

(In the space below, make one sketch showing the form and dimensions of a cross section through the spillway or waste-weir of this dam and outline the abutment, and a second sketch showing the same information for a cross section through the other portion of the dam. Show particularly the greatest height of the dam above the stream bed, its thickness at the top, and thickness at the bottom, as nearly as you can learn.)



The total length of this dam is 200 feet. The spillway or waste-weir portion, is about 30 feet long, and the crest of the spillway is about 3 feet below the abutment.

The number, size and location of discharge pipes, waste pipes or gates which may be used for drawing off the water from behind the dam, are as follows: one flume  
3 ft dia

At the time of this inspection the water level above the dam was 6 ft. 6 in. below ~~above~~ the crest of the spillway.

(State briefly, in the space below, whether, in your judgment, this dam is in good condition, or bad condition, describing particularly any leaks or cracks or erosions which you may have observed.)

The dam is in good condition  
There are no leaks or erosions  
The mill would be seriously damaged  
should the dam go out.

Reported by Edwin K. Munn  
(Signature)

314 N. Main  
(Address—Street and number, P. O. Box or R. F. D. route)

Johnston N. Y.  
(Name of place)

DEC



(NOTICE: After filling out one of these forms as completely as possible for each dam in your district, return it at once to the Conservation Commission, Albany.)

STATE OF NEW YORK  
CONSERVATION COMMISSION  
ALBANY

DAM REPORT

September, 1917  
(Date)

CONSERVATION COMMISSION,

DIVISION OF WATERS.

GENTLEMEN:

I have the honor to make the following report in relation to the structure known as the West Mill Co. 172-392 Dam.

This dam is situated upon the a branch of the Cayadutta Creek  
(Give name of stream)  
in the Town of Johnstown, Fulton County,  
about 1/2 mile from the Village or City of Gloversville  
(State distance)  
The distance down stream from the dam, to the West Mill Co. bridge,  
(Up or down) (Give name of nearest important stream or of a bridge)  
is about 10 miles.  
(State distance)

The dam is now owned by West Mill Co. Gloversville N.Y.  
(Give name and address in full)  
and was built in or about the year 1872, and was extensively repaired or reconstructed during the year 19--.

As it now stands, the spillway portion of this dam is built of timber & masonry  
(State whether of masonry, concrete or timber)  
and the other portions are built of concrete & masonry  
(State whether of masonry, concrete, earth or timber with or without rock fill)

As nearly as I can learn, the character of the foundation bed under the spillway portion of the dam is gravel and under the remaining portions such foundation bed is loam.

DEC

AD-A105 798

MALE (C T) ASSOCIATES SCHENECTADY NY  
NATIONAL DAM SAFETY PROGRAM, WEST MILLPOND DAM (NY 01060), MOHA--ETC(U)  
SEP 81 K J MALE

F/G 13/13

DACW51-81-C-0014

NL

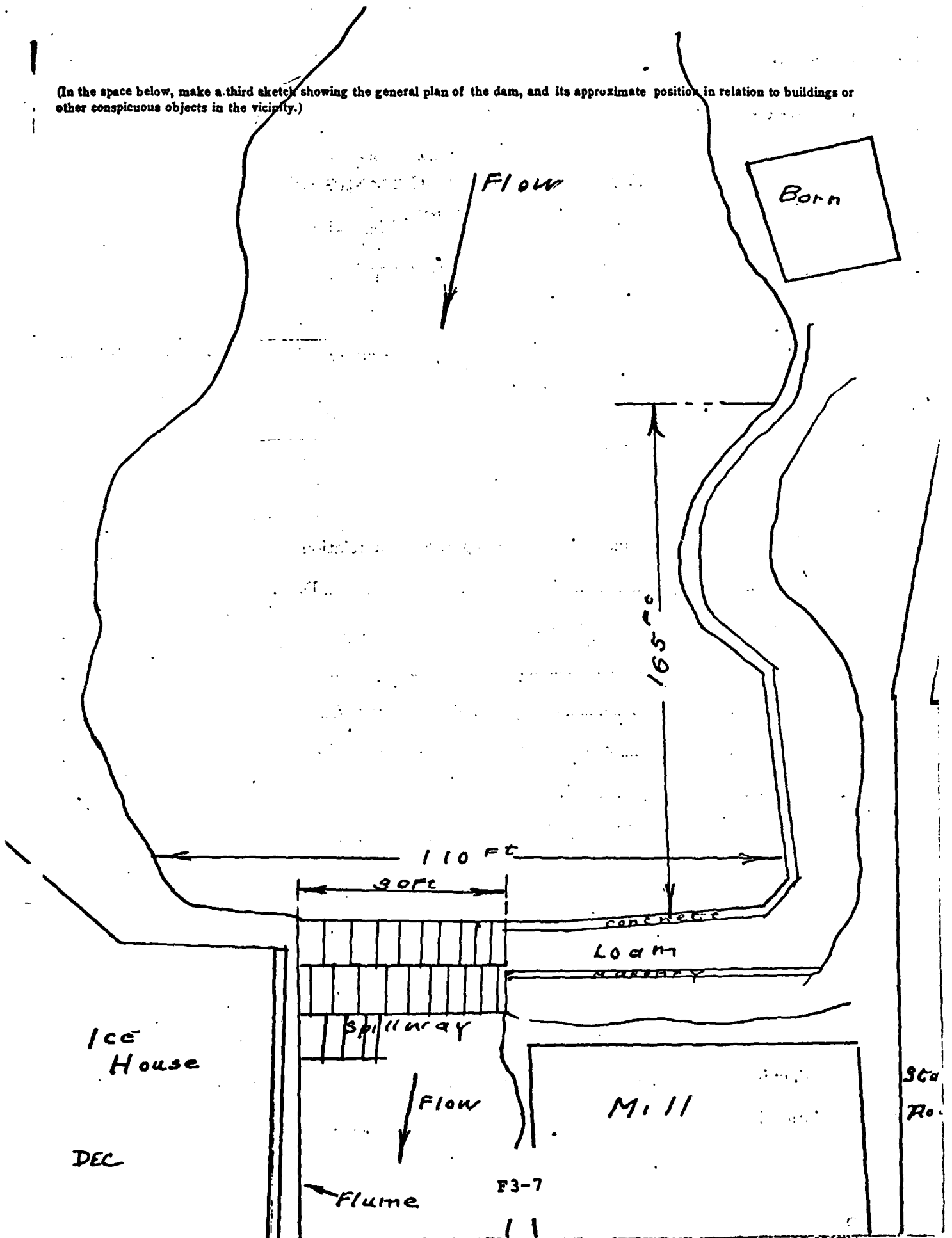
UNCLASSIFIED

2 OF 2

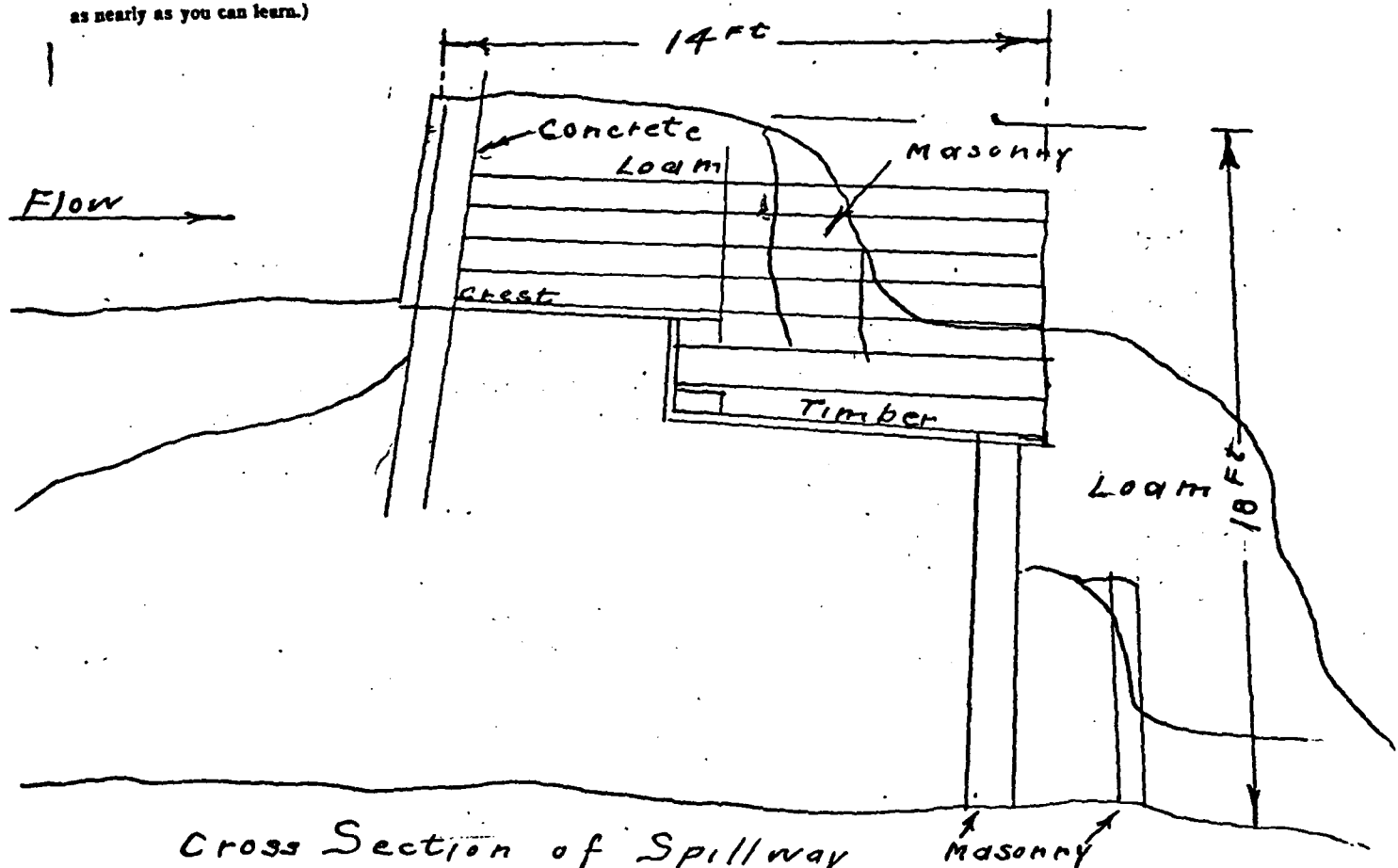
AD A  
105-798

END  
DATE  
FILMED  
11-81  
DTIC

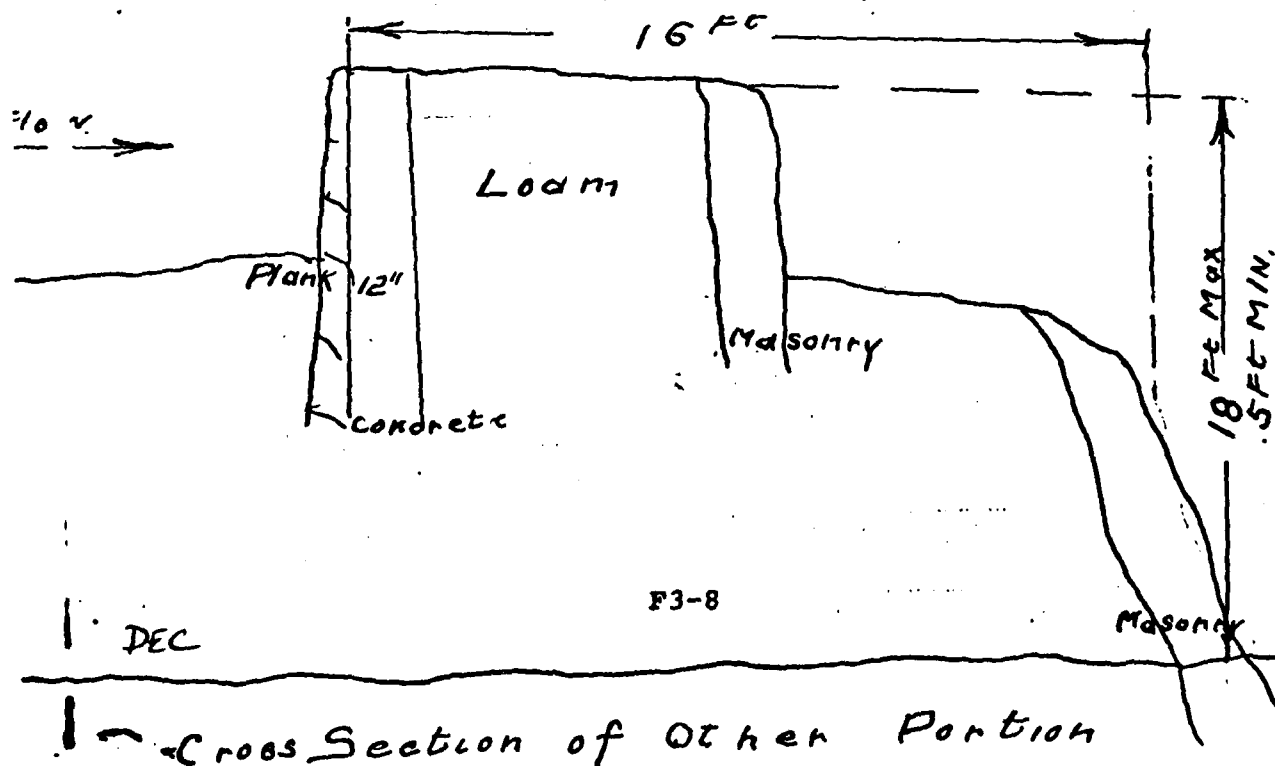
(In the space below, make a third sketch showing the general plan of the dam, and its approximate position in relation to buildings or other conspicuous objects in the vicinity.)



(In the space below, make one sketch showing the form and dimensions of a cross section through the spillway or waste-weir of this dam and outline the abutment, and a second sketch showing the same information for a cross section through the other portion of the dam. Show particularly the greatest height of the dam above the stream bed, its thickness at the top, and thickness at the bottom, as nearly as you can learn.)



Cross Section of Spillway



Cross Section of Other Portion

The total length of this dam is 275 feet. The spillway or waste-weir portion, is about 30 feet long, and the crest of the spillway is about 3 feet below the abutment.

The number, size and location of discharge pipes, waste pipes or gates which may be used for drawing off the water from behind the dam, are as follows: one flume

2 ft 6 in diameter

At the time of this inspection the water level above the dam was 4 ft. 4 in. ~~below~~ <sup>above</sup> the crest of the spillway.

(State briefly, in the space below, whether, in your judgment, this dam is in good condition, or bad condition, describing particularly any leaks or cracks or erosions which you may have observed.)

The dam is in good condition  
There are no erosions, cracks, or leaks  
The mill would be damaged seriously should the dam go out.

Reported by Edwin Krauss  
(Signature)

314 Main St  
(Address—Street and number, P. O. Box or R. F. D. route)

Johnstown N.Y.  
(Name of place)

DEC

(NOTICE: After filling out one of these forms as completely as possible for each dam in your district, return it at once to the Conservation Commission, Albany.)

STATE OF NEW YORK  
CONSERVATION COMMISSION  
ALBANY

RECEIVED

SEP 16 1913

DIVISION INLAND WATERS  
J. D. M.

DAM REPORT

Sep 10, 1913  
(Date)

CONSERVATION COMMISSION,

DIVISION OF INLAND WATERS.

GENTLEMEN:

I have the honor to make the following report in relation to the structure known as the West-Mill Dam.

This dam is situated upon the Waco Creek  
(Give name of stream.)  
in the City of Gloversville, Fuller County,  
about 1 mile from the Center Village or City of Gloversville.  
(State distance)

The distance Down stream from the dam, to the Rose st bridge,  
(Up or down) (Give name of nearest important stream or of a bridge)  
is about 500 ft.  
(State distance)

The dam is now owned by The Daniel Hayes Co  
(Give name in full)  
and was built in or about the year 1840, and was extensively repaired or reconstructed during the year 1908.

As it now stands, the spillway portion of this dam is built of Wood Concrete Batt  
(State whether of masonry, concrete or timber)  
and the other portions are built of Earth & timber concrete faced  
(State whether of masonry, concrete, earth or timber with or without rock fill)

As nearly as I can learn, the character of the foundation bed under the spillway portion of the dam is Gravel and under the remaining portions such foundation bed is Gravel.

DEC

As to location of buildings below  
dam there is numerous mills and store  
houses along creek for a distance of  
four or five miles but no dwelling  
on account of the condition of water and  
offensive odor from mill refuse and  
sewage in former times.

I inclose herewith which letter  
which Mr. L. A. Tate Treasurer and manager  
of the Daniel Hayes Co had written  
you and turned over to me when  
interviewed regarding dam,  
which makes plain the affairs in  
connection the dam in question

yours C. H. Masten

The total length of this dam is 180 feet. The spillway or waste-weir portion, is about 60 feet long, and the crest of the spillway is about 12 feet below the top of the dam.

The number, size and location of discharge pipes, waste pipes or gates which may be used for drawing off the water from behind the dam, are as follows: 4 ft Waste Gate  
4 ft Link to Wheel

State briefly, in the space below, whether, in your judgment, this dam is in good condition, or bad condition, describing particularly any leaks or cracks which you may have observed.)

*This dam is in first class condition the repairs not being necessary but done as a safeguard and to stop minor leakage*



Reported by

C. H. Marten  
(Signature)

116 7th Ave

(Address—Street and number, P. O. Box or R. F. D. route)

W. H. Marten

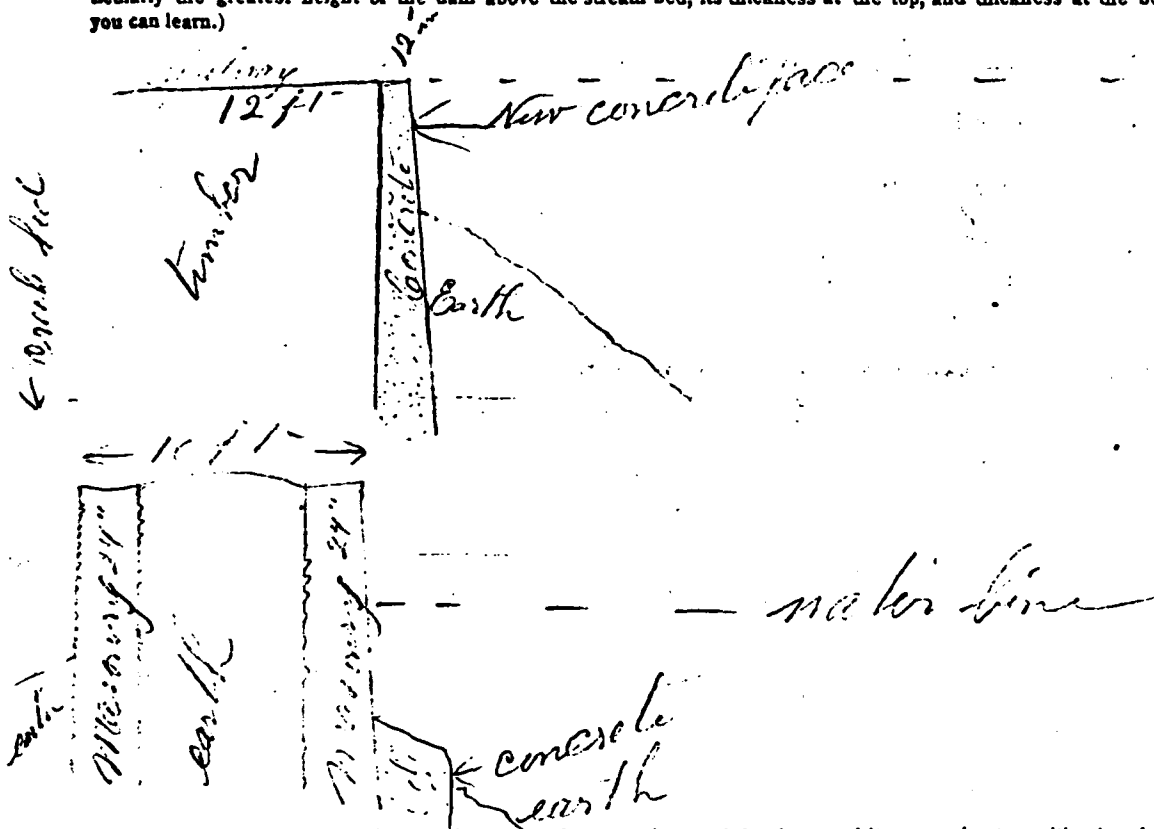
(Name of place)

(SEE OTHER SIDE)

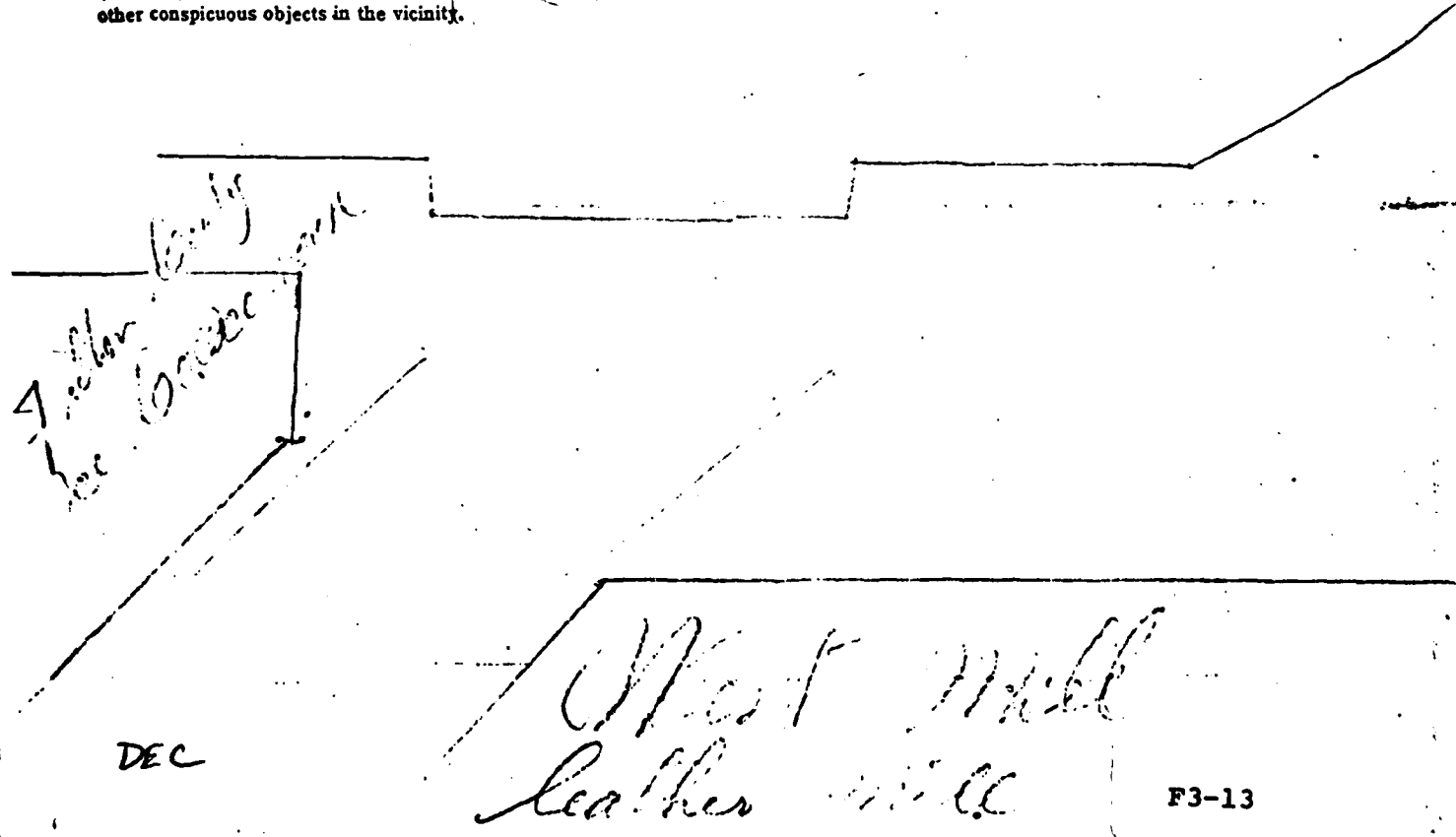
DEC



(In the space below, make one sketch showing the form and dimensions of a cross section through the spillway or waste-weir of this dam, and a second sketch showing the same information for a cross section through the other portion of the dam. Show particularly the greatest height of the dam above the stream bed, its thickness at the top, and thickness at the bottom, as nearly as you can learn.)



(In the space below, make a third sketch showing the general plan of the dam, and its approximate position in relation to buildings or other conspicuous objects in the vicinity.)



DEC

(NOTICE: After filling out one of these forms as completely as possible for each dam in your district, return it at once to the Conservation Commission, Albany.)

STATE OF NEW YORK  
CONSERVATION COMMISSION  
ALBANY

DAM REPORT

June 19, 1918  
(Date)

CONSERVATION COMMISSION,

DIVISION OF WATERS.

GENTLEMEN:

I have the honor to make the following report in relation to the structure known as the Daniel Hays S-172-392 Prob. Dam.

This dam is situated upon the branch of the Cayadutta creek  
(Give name of stream)  
in the Town of Albany, Albany County,  
about 1 mile from the Village or City of Albany  
(State distance)

The distance down stream from the dam, to the Albany-Hudson State Road  
(Up or down) (Give name of nearest important stream or of a bridge)  
is about 5 miles.  
(State distance)

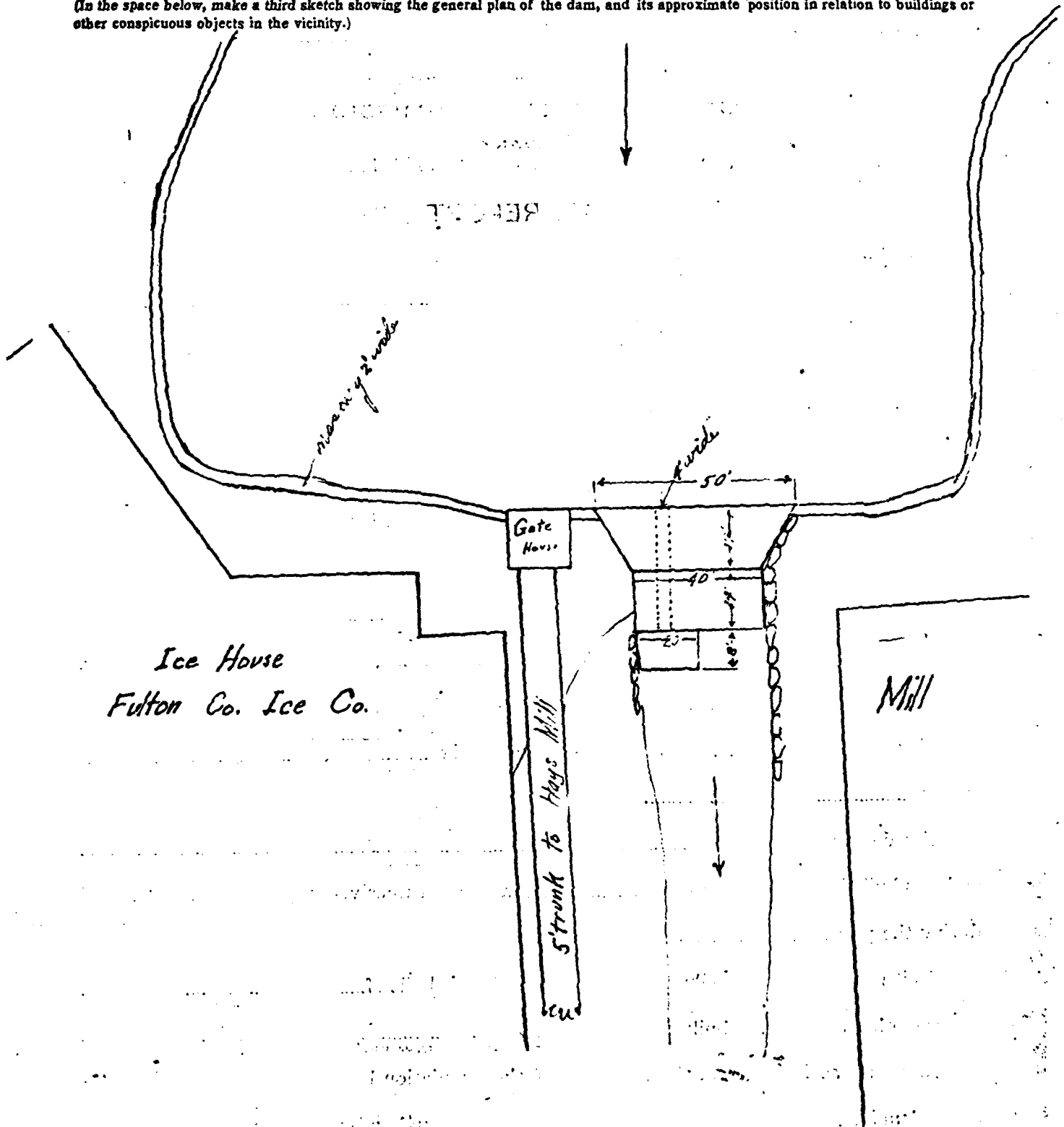
The dam is now owned by The Daniel Hays Co., 115 N. 5th St., Albany, N.Y.  
(Give name and address in full)  
and was built in or about the year 1894, and was extensively repaired or reconstructed during the year 1914.

As it now stands, the spillway portion of this dam is built of masonry with timber  
(State whether of masonry, concrete or timber)  
and the other portions are built of masonry with rock fill  
(State whether of masonry, concrete, earth or timber with or without rock fill)

As nearly as I can learn, the character of the foundation bed under the spillway portion of the dam is rock and under the remaining portions such foundation bed is rock.

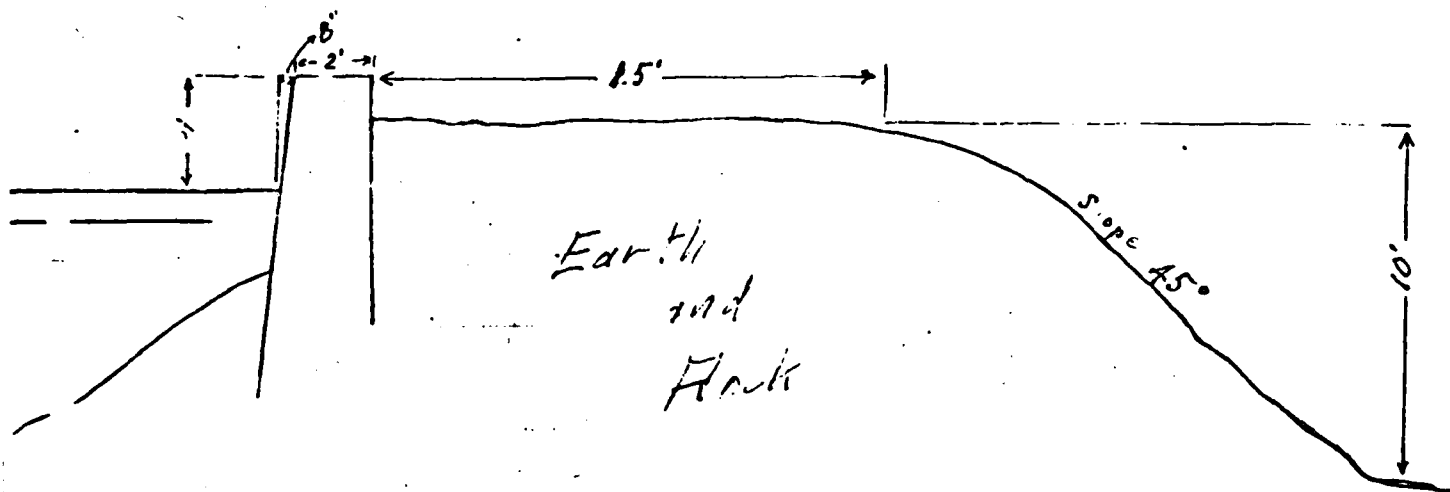
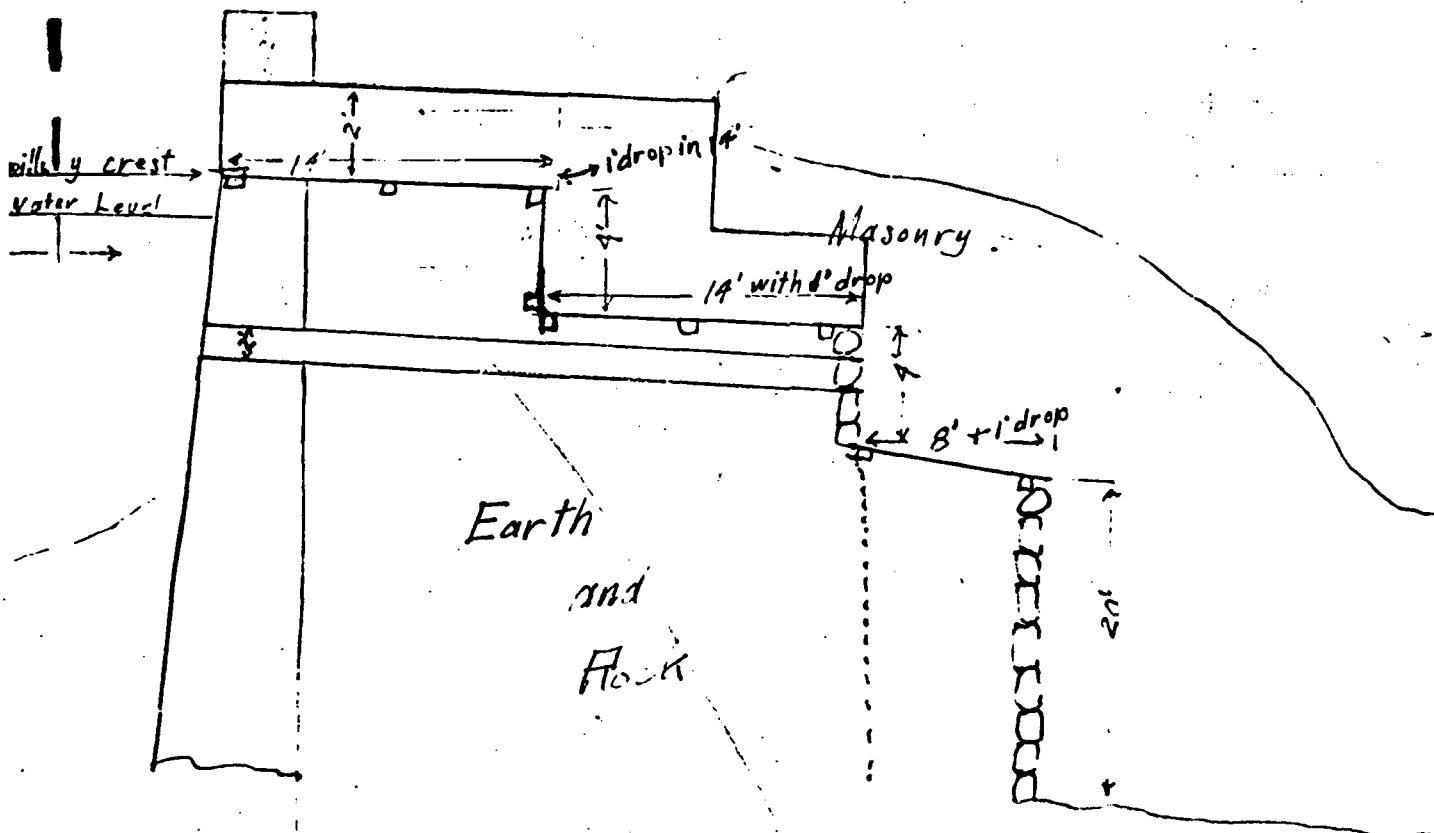
DEC

(In the space below, make a third sketch showing the general plan of the dam, and its approximate position in relation to buildings or other conspicuous objects in the vicinity.)



DEC

(In the space below, make one sketch showing the form and dimensions of a cross section through the spillway or waste-weir of this dam and outline the abutment, and a second sketch showing the same information for a cross section through the other portion of the dam. Show particularly the greatest height of the dam above the stream bed, its thickness at the top, and thickness at the bottom, as nearly as you can learn.)



DEC

The total length of this dam is 60' feet. The spillway or waste-weir portion, is about 50 feet long, and the crest of the spillway is about 2 feet below the abutment.

The number, size and location of discharge pipes, waste pipes or gates which may be used for drawing off the water from behind the dam, are as follows: no s' trunk to right of spillway  
and in sluice 2' high and 4' wide.

At the time of this inspection the water level above the dam was 1 ft. 6 in. ~~below~~ above the crest of the spillway.

(State briefly, in the space below, whether, in your judgment, this dam is in good condition, or bad condition, describing particularly any leaks or cracks or erosions which you may have observed.)

*Some erosion has taken place to the right of the spillway, otherwise the dam is in good condition.*

Reported by C. Christie  
(Signature)

Box 257  
(Address—Street and number, P. O. Box or R. F. D. route)

Orleans, La.  
(Name of place)

DEC

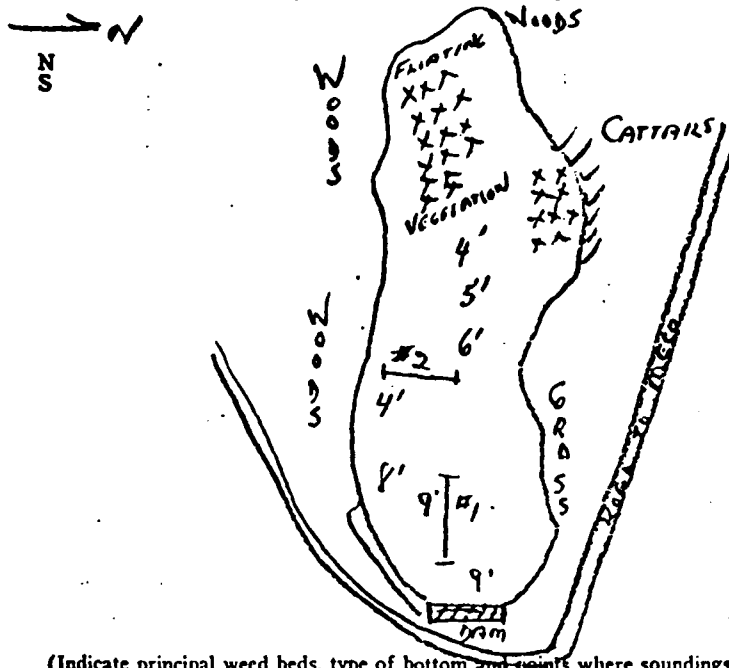


West Millpond Dam-Spillway from downstream - 5/19/19

# WEST MILL POND

(1955)

(Outline sketch of lake or pond)



(Indicate principal weed beds, type of bottom and points where soundings were taken on sketch; also indicate, by numbers, points where collections were taken)

Area 150.00 est. Elevation 860'

If posted: Owner's name and address.....

Bottom: clay, gravel, marl, muck, rock, sand (underline; give % of each type)

Vegetation: scant, fair, abundant, floating, submerged (underline; give % of each type)

Source: springs in bottom, spring streams, surface water (underline)

Shore line: wooded, swampy, cultivated, URBAN

Color of water: white, light brown, brown.....

Height of dam if present 25'

Accessibility: road, trail, portage.....

NYSDC BUREAU OF FISH & WILDLIFE

Game fish : non-game fish ratio.....  
Trout spawning success.....  
Fertility: 2.5 Productive :  
Soil type : 2  
Invertebrate food : 2.5  
Accessible forage area (% bottom)  
Management: Trout or non-trout  
bait, spearing (check if applicable)  
Salvage netting.....  
Other management : Stock and :  
when available  
Stocking (Cm. 3, 1, Y.P. 2, B)

# DER DAM INSPECTION REPORT

03	18	13	000392	180970	003	4
RB	CTY	YR AP.	DAM NO.	INS. DATE	USE	TYPE

<u>AS BUILT INSPECTION</u>		
<input type="checkbox"/> Location of Sp'way and outlet	<input type="checkbox"/> Elevations	
<input type="checkbox"/> Size of Sp'way and Outlet	<input type="checkbox"/> Geometry of Non-overflow section	

<u>GENERAL CONDITION OF NON-OVERFLOW SECTION</u>		
<input type="checkbox"/> Settlement	<input type="checkbox"/> Cracks	<input type="checkbox"/> Deflections
<input type="checkbox"/> Joints	<input type="checkbox"/> Surface of Concrete	<input type="checkbox"/> Leakage
<input type="checkbox"/> Undermining	<input type="checkbox"/> Settlement of Embankment	<input type="checkbox"/> Crest of Dam
<input type="checkbox"/> Downstream Slope	<input type="checkbox"/> Upstream Slope	<input type="checkbox"/> Toe of Slope

<u>GENERAL COND. OF SP'WAY AND OUTLET WORKS</u>		
<input type="checkbox"/> Auxiliary Spillway	<input type="checkbox"/> Service or Concrete Sp'way	<input type="checkbox"/> Stilling Basin
<input type="checkbox"/> Joints	<input type="checkbox"/> Surface of Concrete	<input type="checkbox"/> Spillway Toe
<input type="checkbox"/> Mechanical Equipment	<input type="checkbox"/> Plunge Pool	<input type="checkbox"/> Drain

<input type="checkbox"/> Maintenance	<input type="checkbox"/> Hazard Class
<input type="checkbox"/> Evaluation	<input type="checkbox"/> Inspector

## COMMENTS:

Some cracking of concrete wingwalls but no leakage noticed.

Re-inspected 7/12/79 KDH.  
 "Same" but seal better on Trees

DEC



## DEC DAM INSPECTION REPORT CODING

1. River Basin - Nos. 1-23 on Compilation Sheets
2. County - Nos. 1-62 Alphabetically
3. Year Approved -
4. Inspection Date - Month, Day, Year
5. Apparent use -
  1. Fish & Wildlife Management
  2. Recreation
  3. Water Supply
  4. Power
  5. Farm
  6. No Apparent Use
6. Type -
  1. Earth with Aux. Service Spillway
  2. Earth with Single Conc. Spillway
  3. Earth with Single non-conc. Spillway
  4. Concrete
  5. Other
7. As-Built Inspection - Built substantially according to approved plans and specifications

### Location of Spillway and Outlet Works

1. Appears to meet originally approved plans and specifications.
2. Not built according to plans and specifications and location appears to be detrimental to structure.
3. Not built according to plans and specifications but location does not appear to be detrimental to structure.

### Elevations

1. Generally in accordance to approved plans and specifications as determined from visual inspection and use of hand level.
2. Not built according to plans and specifications and elevation changes appear to be detrimental to structure.
3. Not built according to plans and specifications but elevation changes do not appear to be detrimental to structure.

### Size of Spillway and Outlet Works

1. Appears to meet originally approved plans and specifications as determined by field measurements using tape measure.
2. Not built according to plans and specifications and changes appear detrimental to structure.
3. Not built according to plans and specifications but changes do not appear detrimental to structure.

### Geometry of Non-overflow Structures

1. Generally in accordance to originally approved plans and specifications as determined from visual inspection and use of hand level and tape measure.
2. Not built according to plans and specifications and changes appear detrimental to structure.
3. Not built according to plans and specifications but changes do not appear detrimental to structure.

### General Conditions of Non-Overflow Section

1. Adequate - No apparent repairs needed or minor repairs which can be covered by periodic maintenance.
2. Inadequate - Items in need of major repair.

(Plans) For boxes listed on condition under non-overflow section.

1. Satisfactory.
2. Can be covered by periodic maintenance.
3. Unsatisfactory - Above and beyond normal maintenance.

# DEC DAM INSPECTION REPORT CODING (cont.)

## General Condition of Spillway and Outlet Works

1. Adequate - No apparent repairs needed or minor repairs which can be covered by periodic maintenance.
2. Inadequate - Items in need of major repair.

(items) For boxes listed conditions listed under spillway and outlet works.

1. Satisfactory.
2. Can be covered by periodic maintenance.
3. Unsatisfactory - Above and beyond normal maintenance.
4. Dam does not contain this feature.

## Maintenance

1. Evidence of periodic maintenance being performed.
2. No evidence of periodic maintenance.
3. No longer a dam or dam no longer in use.

(S.)

## Hazard Classification Downstream

1. (A) Damage to agriculture and county roads.
2. (B) Damage to private and/or public property.
3. (C) Loss of life and/or property.

Evaluation - Based on Judgment and Classification in Box Nos.

## Evaluation for Unsafe Dam

1. Unsafe - Repairable.
2. Unsafe - Not Repairable.
3. Insufficient evidence to declare unsafe.

River Basins	Counties
(1) LOWER HUDSON	1 Albany
(2) UPPER HUDSON	2 Albany
(3) MOHAWK	3 Broome
(4) LAKE CHAMPLAIN	4 Broome
(5) DELAWARE	5 Chenango
(6) SUSQUEHANNA	6 Cayuga
(7) CHEMUNG	7 Chenango
(8) OSWEGO	8 Chemung
(9) GENESEE	9 Chenango
(10) ALLEGHENY	10 Clinton
(11) LAKE ERIE	11 Columbia
(12) WESTERN LAKE ONTARIO	12 Cortland
(13) CENTRAL LAKE ONTARIO	13 Delaware
(14) EASTERN LAKE ONTARIO	14 Dutchess
(15) SALMON RIVER	15 Erie
(16) BLACK RIVER	16 Essex
(17) WEST ST. LAWRENCE	17 Franklin
(18) EAST ST. LAWRENCE	18 Fulton
(19) RACQUETTE RIVER	19 Genesee
(20) ST. REGIS RIVER	20 Greene
(21) HOUSATONIC	21 Hamilton
(22) LONG ISLAND	22 Herkimer
(23) OSKEGATCHIE	23 Jefferson
(24) GLASSE	24 Kings
	25 Lewis
	26 Livingston
	27 Madison
	28 Monroe
	29 Montgomery
	30 Niagara
	31 Oneida
	32 Orleans
	33 Oswego
	34 Otsego
	35 Putnam
	36 Rensselaer
	37 Schoharie
	38 Seneca
	39 Sullivan
	40 Tazewell
	41 Warren
	42 Washington
	43 Wayne
	44 Westchester
	45 Wyoming
	46 Yates

CHARLES R. ACKERBAUER

PROFESSIONAL ENGINEER  
LICENSED LAND SURVEYOR

208 PRINDLE AVENUE

JOHNSTOWN, N. Y. 12093

SURVEY RECORDS OF J. H. MOWREY

PHONE - 762-4881

July 17, 1979

Mr. Chris Chiappa  
Lee Dyeing Company  
Gloversville, New York 12078

RE: West Mill Pond, Dam of Rovel Aqua., Inc.  
West Fulton St., Gloversville, New York

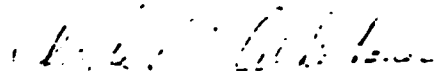
Dear Sir,

Please be advised that I have inspected the above captioned dam on this date and have found it to be sound and in no danger of collapse.

As part of a routine maintenance program the concrete and masonry should be inspected yearly by your staff and any repairs necessary should be promptly attended to.

If you have any questions feel free to call.

Yours truly,



Charles R. Ackerbauer, PE LS

OWNER

F3-23

Room 609

Robert F. Flacke,

July 18, 1979

Rovel Aqua, Inc.  
c/o Jacob Schulman and Company  
97 North Main Street  
Gloversville, New York 12078

Re: Dam #392 Mohawk  
at Intersection of  
Route 29A and W. Fulton St.

Dear Mr. Schulman:

In accordance with the Department of Environmental Conservation's Dam Safety Program, an inspection of the referred to structure was conducted on July 12, 1979.

The following defects were observed:

Trees and brush growing on the dam;

Stone displacement;

Concrete deterioration.

This office recommends that the vegetation be removed, stones replaced, and that the structure be maintained on a routine basis.

If you should have any questions, please call me at Area Code 518-457-6310.

Sincerely,

  
Kenneth D. Harmer  
Dam Safety Program Coordinator

cc: Mr. F. M. Dailey  
Mr. W. Muerman

KDH:kf

DEC

DAM INSPECTION REPORT  
(By Visual Inspection)

West Mill Dam

Dam Number	River Basin	Town	County	Hazard Class	Date & Inspector
172D-392	MOHAWK	GLAUBER	FULTON	C	5/6/80

Stream = MICO CREEK

Owner = ROVEL AQUA, INC.

Type of Construction

Use

- ☐ Earth w/Concrete Spillway  
☐ Earth w/Drop Inlet Pipe  
☒ Earth w/Stone or Riprap Spillway  
☐ Concrete  
☐ Stone  
☐ Timber  
☐ Other \_\_\_\_\_

- ☐ Water Supply  
☐ Power  
☐ Recreation - ☐ High Density  
☐ Fish and Wildlife  
☐ Farm Pond  
☒ No Apparent Use-Abandoned  
☐ Flood Control  
☐ Other \_\_\_\_\_

Estimated Impoundment Size 26 Acres ## Estimated Height of Dam above Streambed 25 Ft.

Condition of Spillway

- ☒ Service satisfactory ☐ Auxiliary satisfactory  
☐ In need of repair or maintenance ☐ In need of repair or maintenance

Explain: concrete capped

Condition of Non-Overflow Section

- ☐ Satisfactory ☒ In need of repair or maintenance

Explain: trees some seepage through stone sections

Condition of Mechanical Equipment

- ☐ Satisfactory ☐ In need of repair or maintenance

Explain: \_\_\_\_\_

Siltation

☒ High

☐ Low

Explain: \_\_\_\_\_

Remarks: \_\_\_\_\_

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Evaluation (From Visual Inspection)

- ☐ Repairs req'd. beyond normal maint. ☒ No defects observed beyond normal maint.

PEC

# West Mill Pond

1 mile  
Round Aqueduct

Capacity 40 million gals in 1953

Wood Killer Supplier - Em - Chem Corp

treatment 1974 100 gals @ \$8.95 of  
Aquatic - Wood Killer

Labor 4 men 160 hours with Boat & Pump.  
rate \$8.00 per hour (?) \$1280.00

gate work was opened in 1977  
2 men @ 15.00 2 hours 60.00  
Was opened in the early 70 how much time  
not sure but it took days. Boat etc  
It must be opened again this year

Brush Removal 1979 1 man 2 days  
@ 10.00 = 160.00

There is probably twice as much to cut this year.  
In Apr 1971 we spent 2 or 3 days with  
a crane and about 4 men & dump truck hauling  
debris from below dam  
? Crane 1000.00 Labor & Truck 1200.00 ?

Inspection Inspected by Charles Ackerbauer P.E. Summer  
of 79 - report coming 3/28/80

Inspected by Dick M. Tuzig a year since early 70.  
Should be inspected as to condition of Pond itself  
with a boat for silt silted etc - weed growth  
and water condition, and over own feet - we  
are not getting the water we were a few years  
ago. We flow water thru the pipe and into  
Creek by mill to keep the pipes clean.

OWNER

Water usage - Turbine we haven't used and  
doubt if we will

Pollution unit - We let the water run continuously  
it flows at 10 PSI 1539 gals per hour

7 days 255552 per week  
could use -

5 days (12 hours a day) 92340 per week

Note

at 10 PSI we might use it in air conditioning  
for office

July 79 we used 72300 " = 540804 gal  
(this is without sewer)

sewer to-day cost

3

APPENDIX G

DRAWINGS

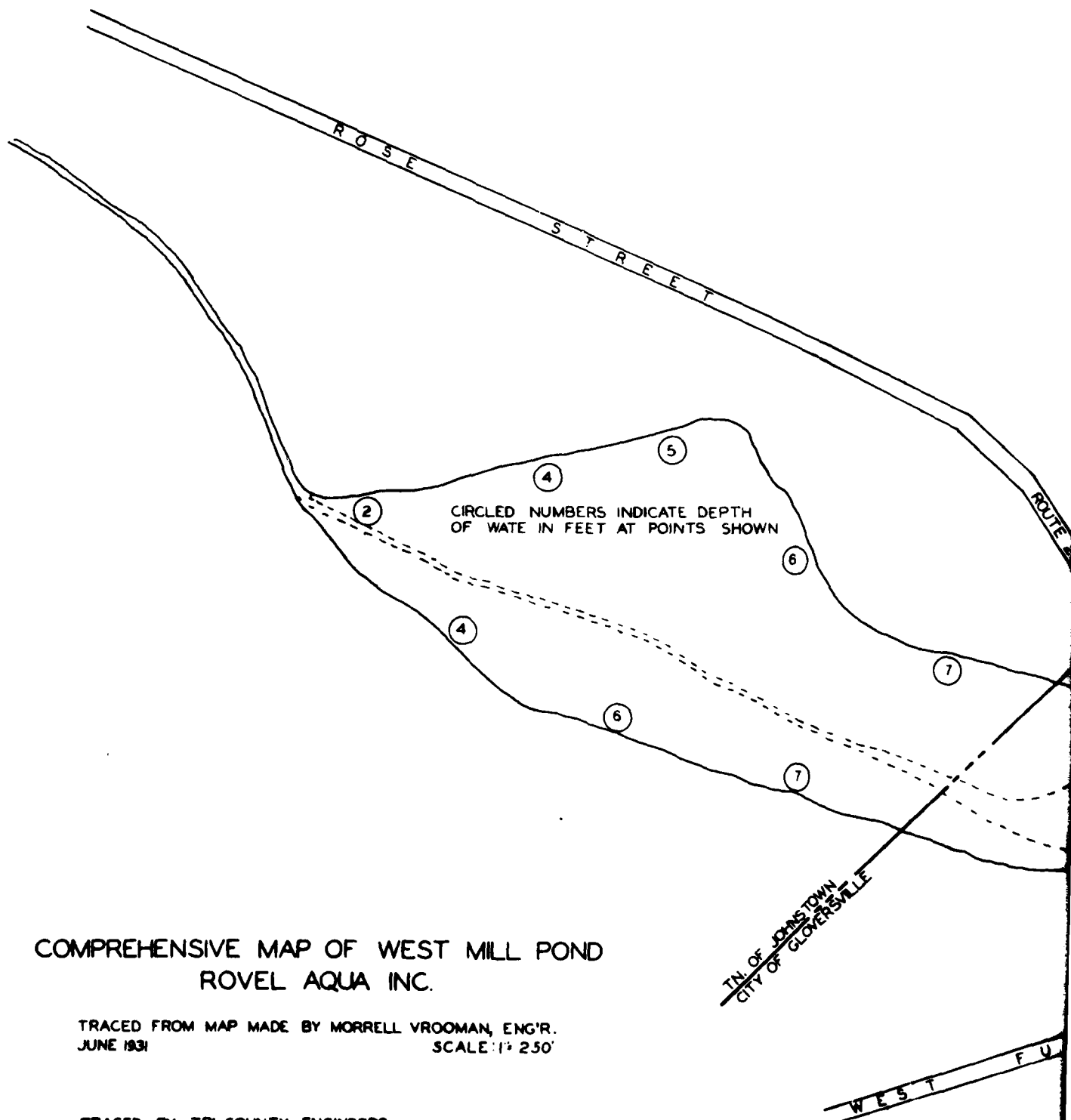
TABLE OF CONTENTS

Page

Comprehensive Map of West Mill Pond, traced by  
Tri-County Engineers from map made by  
Morrell Vrooman, Engineer - June 1931.

G-1





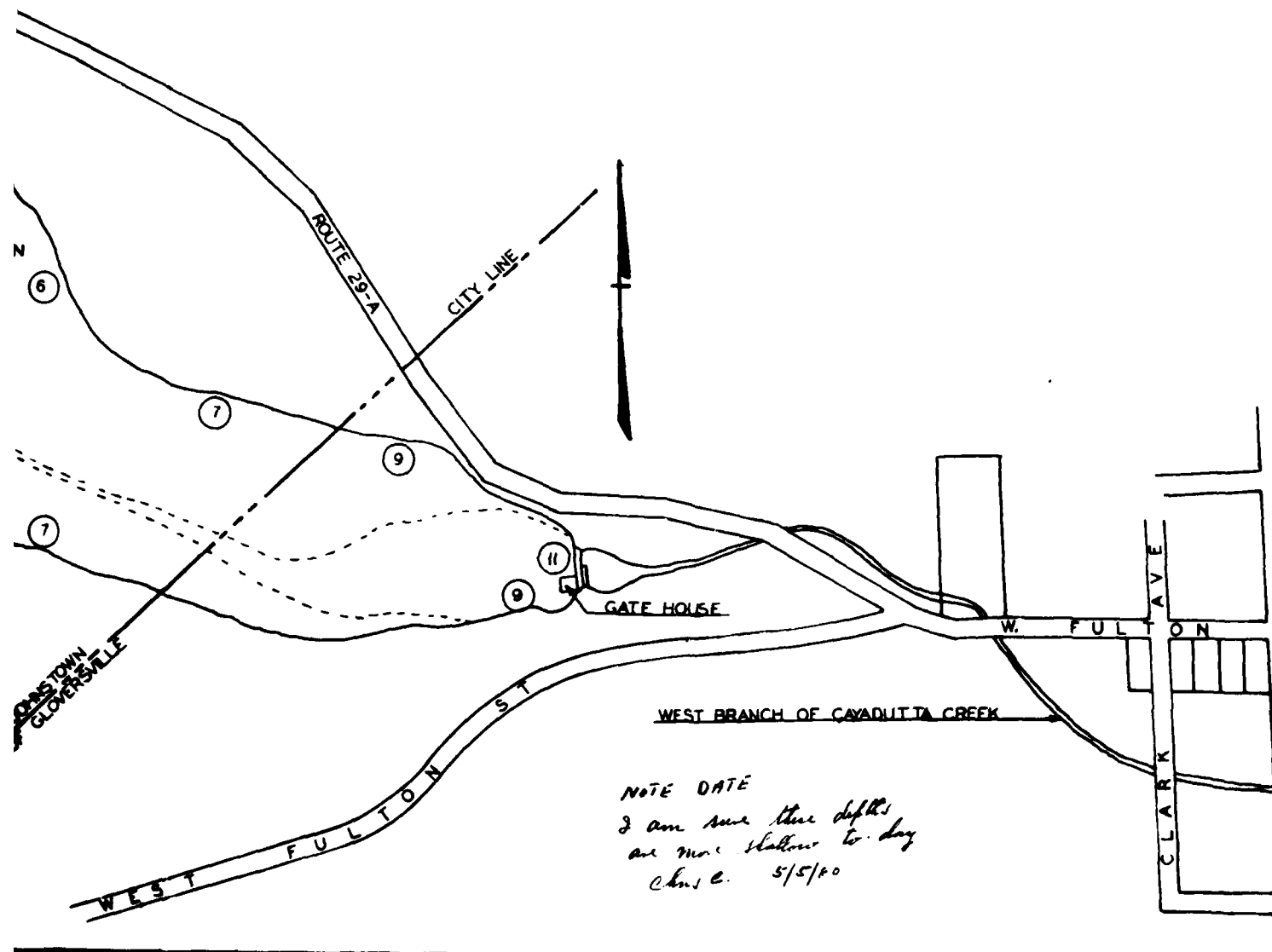
COMPREHENSIVE MAP OF WEST MILL POND  
ROVEL AQUA INC.

TRACED FROM MAP MADE BY MORRELL VROOMAN, ENG'R.  
JUNE 1931

SCALE: 1" = 250'

TRACED BY TRI-COUNTY ENGINEERS

FROM OWNER  
REDUCED TO 77% OF ORIGINAL



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LME